

TECHNISCHE HOGESCHOOL EINDHOVEN

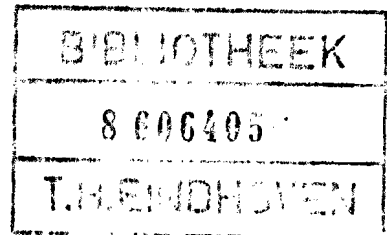
NEDERLAND

ONDERAFDELING DER WISKUNDE

TECHNOLOGICAL UNIVERSITY EINDHOVEN

THE NETHERLANDS

DEPARTMENT OF MATHEMATICS



Computer investigation of cubic graphs

by

F.C. Bussemaker, S. Čobeljč, D.M. Cvetkovič, J.J. Seidel

T.H.-Report 76-WSK-01

January 1976

0. Abstract

The following numbers $N(n)$ of nonisomorphic connected cubic graphs with n vertices are found:

| | | | | | | | |
|--------|---|---|---|---|----|----|------|
| n | = | 4 | 6 | 8 | 10 | 12 | 14 |
| $N(n)$ | = | 1 | 2 | 5 | 19 | 85 | 509. |

Each graph is described by a drawing or/and by the list of its edges. Several additional data are given, such as the spectrum, the order of the automorphism group, and the number of circuits. The graphs are ordered lexicographically according to their eigenvalues in non-increasing order. Such an ordering of graphs seems to be a very natural one. The numbers of cubic graphs with several properties are given.

1. The results

A cubic graph is a regular graph of valency 3. The present report contains tables of all connected cubic graphs up to those with 14 vertices, together with data concerning the characteristic polynomial, the eigenvalues, the number of circuits, the diameter, the connectivity, the planarity, and the order of the automorphism group. As explained on each page of the table (p.p.12-54), the data about the graph are contained in five lines as follows:

Line 1: the graph identification number;

Line 2: the edges, given as pairs of vertices, the vertices being numbered by $1, \dots, n$, where n is the number of vertices;

Line 3: the coefficients a_i ($i = 0, 1, \dots, n$) of the characteristic polynomial

$$\sum_{i=0}^n a_i \lambda^{n-i} = \det(\lambda I - A),$$

where A is the $(0,1)$ -adjacency matrix of the graph;

Line 4: the eigenvalues of the graph (i.e. the eigenvalues of its adjacency matrix) in non-increasing order, rounded off in four decimal positions.

Line 5: the first $n-2$ numbers represent the numbers of circuits of length $3, 4, \dots, n$ in the graph; the next two numbers are the diameter and the connectivity (notice that for cubic graphs the vertex- and edge-connectivities are the same); then the data about planarity (planar or non-planar) and, finally, the order of the automorphism group.

The graphs are classified according to the number of vertices, and within a group with a constant number of vertices the graphs are ordered lexicographically according to the eigenvalues in non-increasing order. On p.p. 63-64 we also give the ordering of the graphs according to the eigenvalues in non-decreasing order.

We found the following numbers $N(n)$ of nonisomorphic connected cubic graphs with n vertices:

| | | | | | | | |
|--------|---|---|---|---|----|----|-----|
| n | = | 4 | 6 | 8 | 10 | 12 | 14 |
| $N(n)$ | = | 1 | 2 | 5 | 19 | 85 | 509 |

The enumeration is trivial for $n \leq 8$. Cubic graphs with 10 vertices were enumerated in [1] and [3] independently, see also [14]. But in [13], p. 62 an incorrect number is stated.

The number of 12-vertex cubic graphs has also been mentioned incorrectly in the literature. In the book [20] we find $N(12) = 87$ on page 72, sequence 595, with references to [13] and to a private communication. In [13] no exact data but only a personal reference without further data are given.

In [18] the authors state $N(12) = 86$, and give 86 cubic connected graphs on 12 vertices. However, the graphs no. 35 and no. 41 from this paper are isomorphic! (The paper contains a few other mistakes caused by the one just mentioned; in addition the graphs no. 24 and no. 26 are stated incorrectly, but that seems to be a typing error).

We found $N(12) = 85$ in two different ways: by a heuristic hand-computer search, performed by S. Čobeljić, and by use of a computer program for generation of regular graphs developed by F.C. Bussemaker several years ago. In the first case the Hamiltonian graphs were constructed starting from a circuit of length 12. The computer generation program will be explained in a separate report. This program was also used in preparing the table of graphs in the present report. It turned out that $N(14) = 509$. In addition, all numbers $N(n)$ mentioned above have been checked in the following way. The number of the labelled cubic graphs was computed directly, and compared to $N(n)$ by use of the orders of the automorphism group of the unlabelled cubic graphs from our table.

All other data were computed by use of standard procedures or some modifications of them. These will be explained in the separate report.

Notice, that from the table the girth and the chromatic number of a graph can be easily determined. The first is obvious; the chromatic number is 4 for the graph with 4 vertices, and 2 or 3 for all other graphs according to whether the least eigenvalue is -3 or not. Indeed, a connected graph is bipartite if and only if its largest and smallest eigenvalue agree in absolute value [9].

Hamiltonian graphs can be recognized by the number of Hamiltonian circuits. It is well-known that a cubic Hamiltonian graph contains at least 3 Hamiltonian circuits.

Graphs with bridges correspond to connectivity one.

On pages 55-62 the pictures of the connected cubic graphs up to 12 vertices are drawn. These pictures have been prepared by S. Čobeljić.

The present search of cubic graphs was motivated by the importance of cubic graphs in graph theory, by the search for cospectral cubic graphs and also by the fact that cubic graphs represent a nontrivial class of graphs which still has a reasonably small cardinality.

2. Spectral properties.

The spectrum of the adjacency matrix of a graph is called the spectrum of the graph. For a general discussion on spectra of graphs see, for example, [9]. Apart from the $(0,1)$ -adjacency matrix, also the $(-1,1,0)$ -adjacency matrix is often used, cf. [15]. If $\lambda_1 = r, \lambda_2, \dots, \lambda_n$ are the eigenvalues of the first matrix for a regular graph of degree r and if $\mu_1, \mu_2, \dots, \mu_n$ are the eigenvalues of the second matrix, we have

$$\mu_1 = n - 1 - 2r, \mu_i = -2\lambda_i - 1, \quad i = 2, 3, \dots, n.$$

Relations of the similar kind exist between the eigenvalues of a regular graph G of degree r and its complement \bar{G} , namely

$$\bar{\lambda}_1 = n - 1 - r, \bar{\lambda}_i = -\lambda_i - 1, \quad i = 2, 3, \dots, n,$$

where $\lambda_1 = r, \lambda_2, \dots, \lambda_n$ and $\bar{\lambda}_1, \bar{\lambda}_2, \dots, \bar{\lambda}_n$ are the eigenvalues of G and \bar{G} . Therefore, the eigenvalues of the $(-1,1,0)$ -adjacency matrix and the eigenvalues of the complement can also be obtained from the table.

The spectrum of the graph does not determine the graph uniquely in the general case. Many examples of cospectral graphs have been noted in the literature (see, for example, [9], [4]). It is known that regular graphs of degree 0, 1 and 2 are characterized by their spectra up to isomorphism, and that for each $r \geq 4$ there exist cospectral regular graphs of degree r . From our tables it follows that the last statement also holds for $r = 3$. There are 3 pairs of cospectral connected cubic graphs with 14 vertices. These are the graphs with the identification numbers 225 and 226, 336 and 337, and 384 and 385. The first pair is given in Fig. 1.

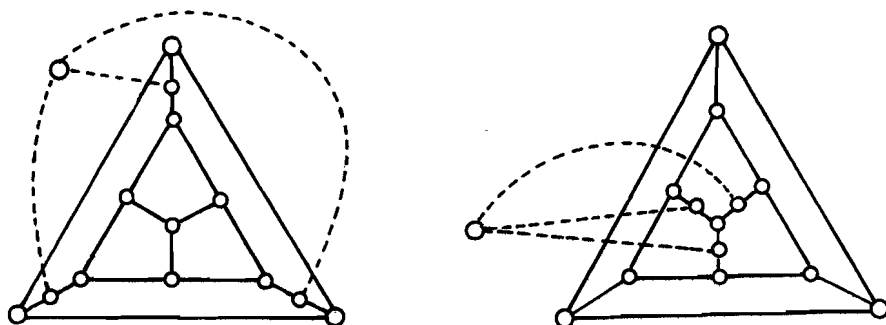


Fig. 1.

One can easily construct infinitely many disconnected cospectral cubic graphs. For example, start with the graphs on Fig. 1, and add to each of these graphs new components which are isomorphic. But in Fig. 2 a pair of non-isomorphic cospectral cubic disconnected graphs is given in which no two components from different graphs are cospectral.

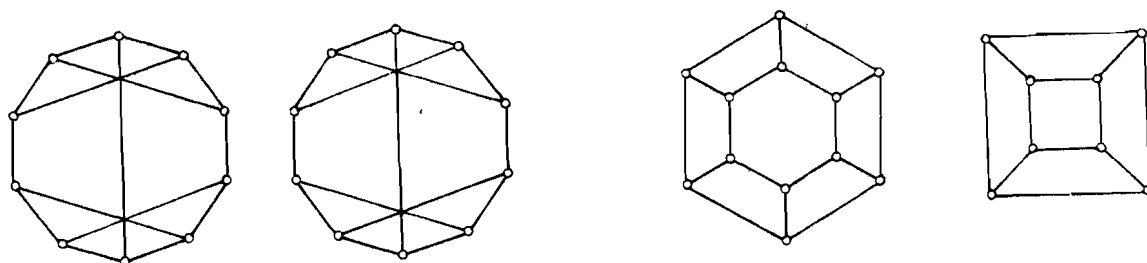


Fig. 2.

The common spectrum consists of eigenvalues $3, 2, 1, 0, -1, -2, -3$ with the multiplicities $2, 2, 4, 4, 4, 2, 2$ respectively. The first graph consists of two copies of the graph no. 10 with 10 vertices and the components of the second one are the graphs no. 66 with 12 vertices and no. 4 with 8 vertices.

Once a pair of connected cubic graphs is constructed one can construct infinitely many pairs of connected cospectral cubic graphs by taking from

each graph the line graph of the subdivision graph [11].

We know only one further minimal (with respect to the construction mentioned above) pair of connected cubic cospectral graphs. One of these graphs is the Desargues graph on 20 vertices [5].

The graphs in Fig. 2 are integral, i.e. their spectra consist entirely of integers. There exist exactly 13 connected cubic integral graphs [10], [5]. The present table of cubic graphs played an important role in finding integral cubic graphs. The integral graphs in the table are: the graphs on 4 vertices, both graphs on 6 vertices, the graph no. 4 on 8 vertices, the graphs no. 9, 10, 19 on 10 vertices and the graphs no. 63, 66 on 12 vertices. In addition, there are 2 connected integral cubic graphs on 20 vertices, one on 24 vertices and one on 30 vertices (Tutte's 8-cage) [5]. The coefficients of the characteristic polynomial $\sum_{i=0}^n a_i \lambda^{n-i}$ have an interpretation in terms of the graph structure [19]. For example $a_0 = 1$, $a_1 = 0$ (since the graph has no loops), $-a_2$ is the number of edges and $-\frac{1}{2}a_3$ is the number of triangles.

In a regular graph the girth g and the numbers of the circuits of length i for $i \leq 2g - 1$ can be determined from the spectrum. Hence the number D_4 of quadrangles and D_5 of pentagons can always be determined in regular graphs. Using a more general result of [19] one can derive the following formulas

$$D_4 = \frac{1}{4}(a_2^2 + 2ra_2 - a_2 - 2a_4),$$

$$D_5 = \frac{1}{2}(a_3a_2 + 3ra_3 - 3a_3 - a_5).$$

It is well known that the degree of a regular graph is the largest eigenvalue in the spectrum and that the regularity of a graph can be recognized from the spectrum. From the spectrum of a regular graph one can calculate the number of spanning trees T according to the formulas (see, for example, [9])

$$T = \frac{1}{n} \prod_{i=2}^n (r - \lambda_i) = P'(r),$$

where $P(\lambda)$ is the characteristic polynomial.

Strongly regular graphs are regular graphs with exactly 3 distinct eigenvalues. They have diameter 2, and in the case of cubic graphs they have at most 10 vertices. From our table it is easy to find that the only cubic strongly regular graphs are $K_{3,3}$ and the Petersen graph.

The diameter D and the number of distinct eigenvalues k of a graph are related by the inequality $D \leq k - 1$ [9].

Our table shows that there is a strong relation between the second largest eigenvalue and the connectivity of the graph. This is not surprising in view of [12]. But the inequalities of [12] are not sharp in the case of cubic graphs and the whole question needs further consideration.

In addition, it seems that the second largest eigenvalue λ_2 says more about the graph; it could be viewed as a parameter showing the shape of the graph in a certain sense. Indeed, if the second largest eigenvalue is large then the graph is "long" (large diameter, existence of bridges etc.). By decreasing the second largest eigenvalue we come across more "round" graphs (small diameter, higher connectivity, higher girth etc.). For example, the list of cubic graphs on 10 vertices ends with the Petersen graph (the only graph having girth 5) and for $n = 14$ the Heawood graph (the only graph having girth 6) comes at the end of the list. The last two graphs from the list for $n = 12$ have the minimal average path length among all cubic graphs on 12 vertices, as found in [7]. The same property holds for the Petersen and the Heawood graph in the corresponding sets of graphs.

If we concentrate on some parts of the list we shall see that λ_2 reflects also fine structural details. For example, the list for $n = 14$ starts with the unique graph with two bridges and then come all other graphs with one bridge. If we include disconnected graphs to the list, then $\lambda_2 = 3$ and the graphs come in the beginning of the list. This is in agreement with the previous data (connectivity is zero, diameter is infinite etc.). But now the third largest eigenvalue takes the role of ordering the graphs and we can see similar effects.

Now turn to the largest eigenvalue. In our case it is constant and equal to 3. In the general case the largest eigenvalue represents a certain average value of the vertex degrees in the graph (see [9], where it is called dynamical average value). The value of λ_1 is related to the number of edges although a functional dependence does not exist. It has already been noticed in [8] that λ_1 has good ordering properties for graphs. In this paper λ_1 is called the index of the graph. For connected graphs on n vertices the complete graph has the maximal $\lambda_1 = n - 1$, and the chain

graph has the minimal $\lambda_1 = 2 \cos \pi/(n+1)$. Classification properties of λ_1 were noticed also in the set of trees [16]. Among all trees with the same number of vertices the star has the largest and the chain has the smallest λ_1 .

All these and some other facts support the conjecture that ordering the graphs lexicographically according to the eigenvalues in non-increasing order is very natural one. However, the problem remains how to order co-spectral graphs.

3. Statistics of cubic graphs.

From the given tables of cubic graphs one can find the following data about the cubic graphs with various properties.

The number of cubic graphs on n vertices with a given property.

| Property | | n=4 | n=6 | n=8 | n=10 | n=12 | n=14 |
|------------------|-----|-----|-----|-----|------|------|------|
| Hamiltonian | yes | 1 | 2 | 5 | 17 | 80 | 474 |
| | no | 0 | 0 | 0 | 2 | 5 | 35 |
| Planar | yes | 1 | 1 | 3 | 9 | 32 | 133 |
| | no | 0 | 1 | 2 | 10 | 53 | 376 |
| Connectivity | 1 | 0 | 0 | 0 | 1 | 4 | 29 |
| | 2 | 0 | 0 | 1 | 4 | 24 | 139 |
| | 3 | 1 | 2 | 4 | 14 | 57 | 341 |
| Chromatic number | 2 | 0 | 1 | 1 | 2 | 5 | 13 |
| | 3 | 0 | 1 | 4 | 17 | 80 | 496 |
| | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| Girth | 3 | 1 | 1 | 3 | 13 | 63 | 399 |
| | 4 | 0 | 1 | 2 | 5 | 20 | 101 |
| | 5 | 0 | 0 | 0 | 1 | 2 | 8 |
| | 6 | 0 | 0 | 0 | 0 | 0 | 1 |
| Diameter | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| | 2 | 0 | 2 | 2 | 1 | 0 | 0 |
| | 3 | 0 | 0 | 3 | 15 | 34 | 34 |
| | 4 | 0 | 0 | 0 | 2 | 43 | 351 |
| | 5 | 0 | 0 | 0 | 1 | 6 | 93 |
| | 6 | 0 | 0 | 0 | 0 | 2 | 24 |
| | 7 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 8 | 0 | 0 | 0 | 0 | 0 | 1 |
| Aut. trivial | yes | 0 | 0 | 0 | 0 | 5 | 103 |
| | no | 1 | 2 | 5 | 19 | 80 | 406 |

The abbreviation "Aut. trivial" means: The automorphism group of the graph is trivial.

The numbers of cubic graphs with 12 and 14 vertices having two of these properties are given in the following two tables.

A few of the numbers quoted above have been given already in [2]. (Note that the orders of the automorphism group for 2 cubic graphs on 8 vertices have been given incorrectly in this paper).

It is interesting that in some cases two of the mentioned properties determine a unique cubic graph with the given number of vertices.

We mention the papers [17], [21] because our table is of some help. For example, it is noticed in [17] that there are 8 connected, cubic graphs with 12 vertices and without quadrangles. These graphs have the following numbers in our table: 46, 50, 56, 63, 65, 74, 84, 85.

The numbers of cubic graphs with three given properties is also sometimes of interest. For example, cubic, planar 3-connected graphs correspond to 3-dimensional polytopes of valency 3. As known all such graphs with at most 26 vertices are Hamiltonian, which is in agreement with our tables.

CONNECTED CUBIC GRAPHS WITH 4 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 1
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 4;
 1 0 -6 -8 -3
 3.0000 -1.0000 -1.0000 -1.0000
 4 3 1 3 PLANAR 24

CONNECTED CUBIC GRAPHS WITH 6 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,5,6, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 1
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 6;
 1 0 -9 -4 12 0 0
 3.0000 1.0000 0.0000 0.0000 -2.0000 -2.0000
 2 5 6 3 2 3 PLANAR 12

NR. 2
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 5; 4, 6;
 1 0 -7 0 0 0 0 0 0
 3.0000 0.0000 0.0000 0.0000 0.0000 -3.0000
 0 9 0 6 2 3 NONPLANAR 72

CONNECTED CUBIC GRAPHS WITH 8 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,8, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 1
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 8; 7, 8;
 1 0 -12 -8 38 48 -12 -40 -15
 3.0000 2.2361 1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -2.2361
 4 2 0 4 8 4 3 2 PLANAR 16

NR. 2
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 7; 6, 8; 7, 8;
 1 0 -12 -4 38 16 -36 -12 9
 3.0000 1.7321 1.0000 0.4142 -1.0000 -1.0000 -1.7321 -2.4142
 2 2 4 7 8 3 3 3 PLANAR 4

NR. 3
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 8; 6, 7; 6, 8;
 1 0 -12 -2 36 0 -31 12 0
 3.0000 1.5616 0.6180 0.6180 0.0000 -1.6180 -1.6180 -2.5616
 1 3 6 6 6 6 2 3 NONPLANAR 12

NR. 4
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 7; 5, 8; 6, 8; 7, 8;
 1 0 -12 0 30 0 -28 0 9
 3.0000 1.0000 1.0000 1.0000 -1.0000 -1.0000 -1.0000 -3.0000
 0 6 0 16 0 6 3 3 PLANAR 48

NR. 5
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 8; 6, 7; 7, 8;
 1 0 -12 0 34 -16 -20 16 -3
 3.0000 1.0000 1.0000 0.4142 0.4142 -1.0000 -2.4142 -2.4142
 0 4 8 4 3 5 2 3 NONPLANAR 16

CONNECTED CUBIC GRAPHS WITH 10 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,10, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 1
 1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 9 8 10 9 10;
 1 0 -15 -8 63 64 -37 -56 -12 0 0
 3.0000 2.7785 1.0000 0.0000 0.0000 -0.2892 -1.0000 -1.0000 -2.0000 -2.4893
 4 6 4 0 0 0 0 0 5 1 PLANAR 32

NR. 2
 1 2 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 9 8 10 9 10;
 1 0 -15 -8 71 64 -101 -104 44 48 0
 3.0000 2.5616 1.0000 1.0000 0.0000 -1.0000 -1.0000 -1.5616 -2.0000 -2.0000
 4 2 4 4 0 4 8 4 4 2 PLANAR 16

NR. 3
 1 2 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 9 8 10 9 10;
 1 0 -15 -6 69 48 -96 -76 30 26 3
 3.0000 2.4381 1.2470 0.7255 -0.1485 -0.4450 -1.0000 -1.5350 -1.8019 -2.4801
 3 3 3 3 4 8 10 4 4 2 PLANAR 4

NR. 4
 1 2 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 9 8 10 9 10;
 1 0 -15 -8 71 68 -93 -132 -36 0 0
 3.0000 2.4142 1.7321 0.0000 0.0000 -0.4142 -1.0000 -1.7321 -2.0000 -2.0000
 4 2 2 1 4 12 12 4 3 2 PLANAR 8

NR. 5
 1 2 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 10 8 9 8 10;
 1 0 -15 -4 63 36 -61 -56 -12 0 0
 3.0000 2.4142 1.3429 0.0000 0.0000 -0.4142 -0.5293 -1.0000 -2.0000 -2.8136
 2 6 0 2 8 8 8 3 2 NONPLANAR 16

NR. 6
 1 2 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 7 6 9 7 10 8 9 8 10 9 10;
 1 0 -15 -4 71 28 -121 -48 64 24 0
 3.0000 2.1466 1.2831 1.0000 0.0000 -0.3683 -1.0000 -1.6053 -2.0000 -2.4562
 2 2 4 5 8 12 10 3 3 3 PLANAR 2

NR. 7
 1 2 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 9 8 10 9 10;
 1 0 -15 -4 69 32 -105 -64 23 20 3
 3.0000 2.1149 1.6180 0.6180 -0.2541 -0.3320 -0.6180 -1.6180 -1.8608 -2.6180
 2 3 2 4 10 13 10 3 3 3 PLANAR 4

NR. 8
 1 2 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 9 7 10 8 9 8 10;
 1 0 -15 -2 67 12 -96 -22 35 12 0
 3.0000 2.0777 1.3094 0.8019 0.0000 -0.4260 -0.5550 -1.2941 -2.2470 -2.6670
 1 4 3 4 12 10 10 6 3 3 NONPLANAR 4

NR. 9
 1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 7 6 10 8 9 8 10 9 10;
 1 0 -15 -4 75 24 -157 -36 144 16 -48
 3.0000 2.0000 1.0000 1.0000 1.0000 -1.0000 -1.0000 -2.0000 -2.0000 -2.0000
 2 0 6 9 6 9 12 6 3 3 NONPLANAR 12

NR. 10
 1 2 1 3 1 4 2 5 2 6 3 5 3 6 4 7 4 8 5 9 6 10 7 9 8 10 9 10;
 1 0 -15 0 63 0 -85 0 36 0 0
 3.0000 2.0000 1.0000 1.0000 0.0000 0.0000 -1.0000 -1.0000 -2.0000 -3.0000
 0 6 0 12 0 24 0 12 3 3 NONPLANAR 49

NR. 11
 1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 8 6 9 6 10 7 9 8 10 9 10;
 1 0 -15 -4 73 28 -141 -52 99 16 -21
 3.0000 1.9354 1.6180 0.6180 0.6180 -0.6180 -1.4626 -1.6180 -1.6180 -2.4728
 2 1 4 8 8 10 12 6 3 3 NONPLANAR 8

NR. 12
 1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 8 6 9 7 10 8 10 9 10;
 1 0 -15 -2 69 12 -116 -24 54 26 3
 3.0000 1.9032 1.2470 1.2470 -0.1939 -0.4450 -0.4450 -1.8019 -1.8019 -2.7093
 1 3 3 7 12 12 6 6 3 3 PLANAR 6

NR. 13
 1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 8 6 10 7 9 8 10 9 10;
 1 0 -15 -6 75 48 -144 -114 75 68 12
 3.0000 1.8794 1.8794 1.0000 -0.3473 -0.3473 -1.5321 -1.5321 -2.0000 -2.0000
 3 0 3 7 9 12 10 3 3 3 PLANAR 6

NR. 14
 1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 8 6 10 7 10 8 9 9 10;
 1 0 -15 -2 71 8 -132 -2 91 -8 -12
 3.0000 1.8794 1.2631 1.0000 0.5157 -0.3473 -1.1826 -1.5321 -2.0000 -2.5962
 1 2 5 8 9 10 12 5 3 3 NONPLANAR 2

NR. 15
 1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 9 8 10 9 10;
 1 0 -15 0 65 -4 -85 -20 35 20 3
 3.0000 1.6180 1.6180 1.0000 -0.3820 -0.3820 -0.6180 -0.6180 -2.6180 -2.6180
 0 5 2 5 20 5 10 5 3 3 PLANAR 20

CONNECTED CUBIC GRAPHS WITH 10 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,10, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 16
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 9; 7, 10; 8, 9; 8, 10;
 1 0 -15 0 65 0 -105 0 55 0 -9
 3.0000 1.6180 1.6180 0.6180 0.6180 -0.6180 -0.6180 -1.6180 -1.6180 -3.0000
 0 5 0 15 0 25 0 8 3 3 NONPLANAR 20

NR. 17
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 8; 7, 10; 8, 9; 9, 10;
 1 0 -15 0 69 -12 -117 36 59 -12 -9
 3.0000 1.6180 1.3028 1.0000 0.6180 -0.3820 -0.6180 -1.6180 -2.3028 -2.6180
 0 3 6 7 12 10 10 7 3 3 NONPLANAR 4

NR. 18
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 8; 6, 9; 6, 10; 7, 9; 7, 10; 8, 10;
 1 0 -15 0 71 -16 -133 64 76 -48 0
 3.0000 1.5616 1.0000 1.0000 1.0000 0.0000 -1.0000 -2.0000 -2.0000 -2.5616
 0 2 8 8 8 12 12 6 3 3 NONPLANAR 8

NR. 19
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 7; 3, 8; 4, 9; 4, 10; 5, 7; 5, 9; 6, 8; 6, 10; 7, 10; 8, 9;
 1 0 -15 0 75 -24 -165 120 120 -160 48
 3.0000 1.0000 1.0000 1.0000 1.0000 1.0000 -2.0000 -2.0000 -2.0000 -2.0000
 0 0 12 10 0 15 20 0 2 3 NONPLANAR 120

CONNECTED CUBIC GRAPHS WITH 12 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,12, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 1
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 5; 5, 6; 6, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -10 109 112 -223 -326 58 196 9 -36 0
 3.0000 2.8323 1.9052 0.6180 0.5014 0.0000 -1.0000 -1.0000 -1.0000 -1.6180 -1.8814 -2.3574
 5 4 4 4 2 0 0 0 0 6 1 PLANAR 16

NR. 2
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 5; 5, 6; 6, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -6 105 60 -211 -122 146 52 -39 0 0
 3.0000 2.8208 1.4322 0.6180 0.5602 0.0000 0.0000 -1.0000 -1.0000 -1.6180 -2.1891 -2.6240
 3 6 6 4 2 0 0 0 6 1 PLANAR 8

NR. 3
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 5; 5, 6; 6, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 10; 9, 11; 10, 12; 11, 12;
 1 0 -18 -8 109 84 -240 -220 172 168 0 0 0
 3.0000 2.8192 1.4142 1.2427 0.0000 0.0000 0.0000 -1.0000 -1.0000 -1.4142 -1.6719 -2.0000 -2.3901
 4 4 6 5 2 0 0 0 5 1 PLANAR 16

NR. 4
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 5; 5, 6; 6, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
 1 0 -18 -4 101 36 -176 -40 84 0 0 0 0
 3.0000 2.8192 1.2427 0.7321 0.0000 0.0000 0.0000 0.0000 0.0000 -1.0000 -1.6719 -2.3901 -2.7321
 2 8 6 2 4 0 0 0 5 1 NONPLANAR 32

NR. 5
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -8 111 88 -260 -264 199 232 -42 -48 9
 3.0000 2.7093 1.7321 1.0000 0.4142 0.1939 -1.0000 -1.0000 -1.0000 -1.7321 -1.9032 -2.4142
 4 3 4 4 4 0 4 8 4 5 2 PLANAR 16

NR. 6
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -6 111 60 -271 -152 273 124 -97 18 9
 3.0000 2.6628 1.3646 1.1935 0.4928 0.2950 -0.4033 -1.0000 -1.0000 -1.2950 -1.7695 -2.1935 -2.3474
 3 3 6 4 3 4 8 10 4 5 2 PLANAR 4

NR. 7
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 10; 9, 11; 10, 12; 11, 12;
 1 0 -18 -8 113 88 -280 -280 244 296 -36 -72 0
 3.0000 2.6554 1.6751 1.2108 0.5392 0.0000 -1.0000 -1.0000 -1.0000 -1.0000 -1.8662 -2.0000 -2.2143
 4 2 4 5 4 2 4 12 4 4 2 PLANAR 8

NR. 8
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
 1 0 -18 -4 105 44 -228 -104 184 72 -36 0 0
 3.0000 2.6554 1.2784 1.2108 0.3174 0.0000 0.0000 -1.0000 -1.0000 -1.0000 -1.7046 -1.8662 -2.3912
 2 6 2 8 0 4 8 8 8 4 2 NONPLANAR 16

NR. 9
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -8 111 96 -268 -336 207 416 30 -168 -63
 3.0000 2.6458 1.7321 1.0000 1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -1.7321 -2.6458
 4 3 0 8 8 0 0 8 16 8 5 2 PLANAR 32

NR. 10
 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 9; 7, 8; 8, 10; 9, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -10 113 120 -263 -434 90 468 209 -48 -35
 3.0000 2.6180 2.0000 1.3028 0.5829 -1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -2.0000 -2.3028
 5 2 0 4 8 4 4 12 12 4 4 2 PLANAR 9

NR. 11
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -4 109 36 -256 -64 223 16 -43 0 0
 3.0000 2.5887 1.4142 1.0000 0.5463 0.0000 0.0000 0.0000 -0.5463 -1.4142 -2.0000 -2.0000 -2.5887
 2 4 6 3 2 7 10 13 12 4 5 2 PLANAR 4

NR. 12
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 10; 9, 11; 10, 12; 11, 12;
 1 0 -18 -6 111 62 -265 -166 213 92 -60 0 0
 3.0000 2.5758 1.8019 0.8127 0.4450 0.0000 0.0000 -1.0000 -1.0000 -1.2470 -2.0000 -2.0000 -2.3885
 3 3 5 2 2 6 12 13 14 4 4 2 PLANAR 4

NR. 13
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
 1 0 -18 -2 103 13 -201 -26 105 0 0 0 0
 3.0000 2.5758 1.4999 0.9127 0.0000 0.0000 0.0000 0.0000 0.0000 -1.0000 -1.6566 -2.3885 -2.8342
 1 7 3 3 4 4 16 12 12 8 4 2 NONPLANAR 8

NR. 14
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 7; 6, 8; 6, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -8 113 88 -272 -272 176 192 -0 0 0
 3.0000 2.5616 2.0000 1.0000 0.0000 0.0000 0.0000 0.0000 -1.0000 -1.5616 -2.0000 -2.0000 -2.0000
 4 2 4 2 0 4 16 24 16 4 4 2 PLANAR 16

NR. 15
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 7; 6, 8; 6, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
 1 0 -18 -4 105 44 -216 -104 96 0 0 0 0
 3.0000 2.5616 1.4422 0.5069 0.0000 0.0000 0.0000 0.0000 0.0000 -1.5069 -1.5616 -2.0000 -2.8422
 2 6 2 3 0 8 16 16 16 8 4 2 NONPLANAR 16

CONNECTED CUBIC GRAPHS WITH 12 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,12, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 16
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 5; 4, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
1 0 -18 0 97 0 -144 0 0 0 0 0 0 0 0
3.0000 2.5616 1.5616 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -1.5616 -2.5616 -3.0000
0 10 0 4 0 16 0 32 0 16 4 2 NONPLANAR 64

NR. 17
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 12; 11, 12;
1 0 -18 -6 113 64 -295 -202 334 252 -135 -108 0
3.0000 2.5616 1.3028 1.3028 1.0000 0.0000 -1.0000 -1.0000 -1.0000 -1.0000 -1.5616 -2.3028 -2.3028
3 2 4 6 7 3 6 16 14 4 4 2 PLANAR 4

NR. 18
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 10; 8, 11; 9, 11; 9, 12; 10, 12; 11, 12;
1 0 -18 -6 111 68 -275 -220 257 236 -61 -54 9
3.0000 2.5529 1.6337 1.2577 0.4733 0.1582 -1.0000 -1.0000 -1.0000 -1.0000 -1.4733 -1.9688 -2.6337
3 3 2 6 6 5 10 14 12 4 4 2 PLANAR 2

NR. 19
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
1 0 -18 -4 109 40 -260 -100 248 72 -72 0 0
3.0000 2.5471 1.4142 1.1865 0.4993 0.0000 0.0000 -1.0000 -1.3331 -1.4142 -2.2581 -2.6418
2 4 4 4 6 6 12 12 12 8 4 2 NONPLANAR 3

NR. 20
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 9; 9, 11; 9, 12; 10, 11; 10, 12; 11, 12;
1 0 -18 -8 113 92 -276 -312 188 300 16 -48 0
3.0000 2.5226 2.0000 1.1164 0.3653 0.0000 -1.0000 -1.0000 -1.0000 -1.6557 -2.0000 -2.3485
4 2 2 3 5 7 12 18 14 4 4 2 PLANAR 2

NR. 21
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 10, 12; 11, 12;
1 0 -18 -6 113 64 -291 -198 294 204 -83 -48 0
3.0000 2.5200 1.6408 1.2220 0.6180 0.0000 -0.4344 -1.0000 -1.4418 -1.6190 -2.1084 -2.3982
3 2 4 4 6 10 8 12 16 8 4 2 NONPLANAR 4

NR. 22
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 11; 9, 10; 9, 12; 10, 12; 11, 12;
1 0 -18 -12 111 144 -216 -480 -117 256 138 -36 -27
3.0000 2.5141 2.5141 0.5720 0.5720 -1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -2.0861 -2.0861
6 3 0 0 0 8 24 24 8 4 2 PLANAR 49

NR. 23
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 10; 9, 11; 10, 12; 11, 12;
1 0 -18 -8 111 92 -252 -292 119 180 -34 -36 9
3.0000 2.5141 2.1701 0.5720 0.4142 0.3111 -1.0000 -1.0000 -1.0000 -1.0000 -1.4812 -2.0861 -2.4142
4 3 2 1 2 5 16 24 16 4 4 2 PLANAR 8

NR. 24
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 11; 10, 12; 11, 12;
1 0 -18 -8 115 92 -300 -332 263 420 30 -108 -27
3.0000 2.5141 1.7321 1.4812 0.5720 -0.3111 -1.0000 -1.0000 -1.0000 -1.7321 -2.0861 -2.1701
4 1 2 5 8 9 8 12 12 4 4 2 PLANAR 8

NR. 25
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 11; 9, 12; 10, 12; 11, 12;
1 0 -18 -4 107 48 -243 -152 219 144 -70 -36 9
3.0000 2.5141 1.6554 1.0090 0.5720 0.2108 -1.0000 -1.0000 -1.0000 -1.0000 -2.0861 -2.8662
2 5 0 8 4 6 16 16 8 8 4 2 PLANAR 8

NR. 26
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 12; 10, 11; 11, 12;
1 0 -18 -4 111 36 -276 -76 279 44 -106 0 9
3.0000 2.5141 1.4812 1.0000 0.5720 0.4142 -0.3111 -1.0000 -1.0000 -1.0000 -2.0861 -2.1701 -2.4142
2 3 6 2 6 11 8 16 16 4 4 2 NONPLANAR 8

NR. 27
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
1 0 -18 -6 109 68 -247 -198 146 88 -39 0 0
3.0000 2.5100 2.0198 0.6180 0.3750 0.0000 0.0000 -1.0000 -1.3929 -1.6180 -1.8314 -2.6806
3 4 2 2 2 10 16 16 8 8 4 2 NONPLANAR 8

NR. 28
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 12; 10, 11; 10, 12;
1 0 -18 -4 109 40 -256 -100 216 56 -60 0 0
3.0000 2.5088 1.6751 0.8671 0.5392 0.0000 0.0000 -1.0000 -1.0000 -1.0000 -1.7520 -2.2143 -2.6239
2 4 4 2 6 11 12 12 16 8 4 2 NONPLANAR 4

NR. 29
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 12; 11, 12;
1 0 -18 -4 113 40 -304 -116 360 128 -152 -48 0
3.0000 2.5931 1.4142 1.2250 1.0000 0.0000 -0.3061 -1.0000 -1.0000 -1.4142 -1.7190 -2.0000 -2.5931
2 2 4 7 6 8 16 19 12 3 4 3 PLANAR 2

NR. 30
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 10; 8, 11; 9, 11; 9, 12; 10, 12; 11, 12;
1 0 -18 -4 113 38 -298 -102 326 88 -119 -6 9
3.0000 2.3877 1.5321 1.3028 0.4790 0.3473 -0.3071 -1.0000 -1.2141 -1.8794 -2.3028 -2.3455
2 2 5 4 7 11 15 18 12 3 4 3 PLANAR 2

CONNECTED CUBIC GRAPHS WITH 12 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,12, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 31
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -4 111 42 -278 -126 261 102 -63 0 0
 3.0000 2.3717 1.7672 1.1561 0.3728 0.0000 0.0000 -1.0000 -1.3121 -1.5365 -2.2080 -2.6113
 2 3 3 4 7 11 17 19 12 3 4 3 PLANAR 1

NR. 32
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -2 109 16 -263 -26 234 4 -39 0 0
 3.0000 2.3601 1.5037 1.1922 0.4654 0.0000 0.0000 -0.4592 -1.3337 -1.7681 -2.2438 -2.7166
 1 4 4 4 7 12 18 16 14 6 4 3 NONPLANAR 2

NR. 33
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -4 109 44 -256 -128 188 64 -68 0 0
 3.0000 2.3429 2.0000 0.7321 0.4707 0.0000 0.0000 -1.0000 -1.0000 -1.8136 -2.0000 -2.7321
 2 4 2 3 4 12 22 21 12 3 4 3 PLANAR 4

NR. 34
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -2 107 18 -237 -42 153 0 0 0 0
 3.0000 2.3358 1.8174 0.8794 0.0000 0.0000 0.0000 0.0000 -1.3473 -1.5217 -2.5321 -2.6316
 1 5 3 1 9 12 20 18 14 6 4 3 NONPLANAR 4

NR. 35
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 105 -8 -216 40 96 0 0 0 0
 3.0000 2.3234 1.5616 1.0000 0.0000 0.0000 0.0000 0.0000 -0.6421 -2.0000 -2.5616 -2.6813
 0 6 4 0 12 12 16 24 8 12 3 3 NONPLANAR 16

NR. 36
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -4 115 38 -322 -110 401 122 -179 -48 0
 3.0000 2.3083 1.5096 1.1682 1.0953 0.0000 -0.2624 -1.0000 -1.4773 -1.7886 -2.1975 -2.3557
 2 1 5 6 8 12 14 17 16 6 4 3 NONPLANAR 2

NR. 37
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -4 113 42 -302 -134 334 140 -123 -30 9
 3.0000 2.2855 1.7495 1.2414 0.6180 0.1939 -0.4206 -1.0000 -1.3735 -1.6180 -2.0733 -2.6029
 2 2 5 6 8 12 16 18 16 6 4 3 NONPLANAR 2

NR. 38
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -2 109 20 -267 -62 254 60 -63 0 0
 3.0000 2.2793 1.5909 1.3028 0.4496 0.0000 0.0000 -1.0000 -1.0000 -1.5508 -2.3028 -2.7689
 1 4 2 6 9 11 22 16 10 6 4 3 PLANAR 2

NR. 39
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -6 115 68 -311 -248 317 308 -57 -66 9
 3.0000 2.2735 1.8996 1.4376 0.4288 0.1334 -1.0000 -1.0000 -1.0000 -1.6694 -2.1401 -2.3636
 3 1 2 5 10 12 15 18 12 3 4 3 PLANAR 2

NR. 40
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -2 111 16 -287 -32 309 20 -117 6 9
 3.0000 2.2735 1.4378 1.3226 0.5450 0.4288 -0.2707 -1.0000 -1.0000 -1.9016 -2.1401 -2.6952
 1 3 4 6 8 12 19 18 14 5 4 3 NONPLANAR 2

NR. 41
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -2 111 18 -293 -42 333 44 -120 -36 0
 3.0000 2.2724 1.2470 1.2470 1.1573 0.0000 -0.4450 -0.4450 -1.6295 -1.8019 -1.8019 -2.3003
 1 5 3 9 6 12 18 18 12 12 3 3 NONPLANAR 12

NR. 42
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -6 115 66 -309 -226 309 244 -68 -48 0
 3.0000 2.2706 2.0000 1.2470 0.5191 0.0000 -0.4450 -1.0000 -1.4511 -1.8019 -2.0000 -2.3337
 3 1 3 4 7 13 13 19 12 3 4 3 PLANAR 1

NR. 43
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -2 111 14 -281 -18 269 -4 -60 0 0
 3.0000 2.2671 1.6055 1.1604 0.5996 0.0000 0.0000 -0.5301 -1.3007 -2.0000 -2.2071 -2.5947
 1 3 5 3 9 16 15 18 16 5 4 3 NONPLANAR 1

NR. 44
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -4 113 38 -294 -98 290 44 -95 -6 9
 3.0000 2.2643 1.9421 0.8019 0.6180 0.3741 -0.4325 -0.5550 -1.6180 -1.7818 -2.2470 -2.3663
 2 2 5 2 6 16 18 18 16 6 3 3 NONPLANAR 4

NR. 45
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 -2 109 20 -267 -58 250 40 -75 0 0
 3.0000 2.2361 1.7913 1.0000 0.6180 0.0000 0.0000 -1.0000 -1.0000 -1.6180 -2.2361 -2.7913
 1 4 2 6 8 12 20 20 12 12 3 3 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 12 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,12, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 46
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 9; 7, 10; 8, 11; 9, 12; 10, 11; 10, 12; 11, 12;
 1 0 -18 -4 117 36 -344 -96 468 80 -240 0 0
 3.0000 2.2361 1.4142 1.4142 1.0000 0.0000 0.0000 -1.4142 -1.4142 -2.0000 -2.0000 -2.2361
 2 0 6 7 6 15 18 15 12 6 4 3 PLANAR 12

NR. 47
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 11; 9, 12; 10, 12; 11, 12;
 1 0 -18 0 105 0 -236 0 180 0 0 0 0
 3.0000 2.2361 1.4142 1.4142 0.0000 0.0000 0.0000 0.0000 -1.4142 -1.4142 -2.2361 -3.0000
 0 6 0 10 0 30 0 36 0 12 4 3 NONPLANAR 12

NR. 48
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 8; 8, 12; 9, 10; 9, 11; 10, 12; 11, 12;
 1 0 -18 -4 111 46 -282 -154 257 142 -39 0 0
 3.0000 2.2240 1.9563 1.2409 0.2091 0.0000 0.0000 -1.0000 -1.0000 -1.3383 -1.7098 -1.8271 -2.7551
 2 3 1 6 7 14 20 16 14 4 3 NONPLANAR 4

NR. 49
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 12; 10, 11; 11, 12;
 1 0 -18 0 107 -6 -246 26 201 -14 -39 0 0
 3.0000 2.2240 1.4413 1.2409 0.5669 0.0000 0.0000 -0.4851 -1.0000 -0.4851 -1.7098 -2.5231 -2.7551
 0 5 3 5 11 10 24 16 14 10 3 3 NONPLANAR 4

NR. 50
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 10; 8, 11; 9, 11; 9, 12; 10, 12; 11, 12;
 1 0 -18 -4 117 38 -346 -118 482 148 -283 -66 45
 3.0000 2.1955 1.5321 1.3028 1.0646 0.3473 -0.6982 -1.0000 -1.4527 -1.4527 -1.8794 -2.1092 -2.3028
 2 0 5 8 9 12 15 19 16 5 4 3 NONPLANAR 2

NR. 51
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 11; 9, 10; 9, 12; 10, 12; 11, 12;
 1 0 -18 -4 115 40 -320 -128 371 136 -126 -12 9
 3.0000 2.1701 1.7321 1.4812 0.4142 0.3111 -0.3111 -1.0000 -1.4812 -1.7321 -2.1701 -2.4142
 2 1 4 5 10 17 16 14 12 6 4 3 PLANAR 4

NR. 52
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 10; 8, 10; 8, 12; 9, 11; 9, 12; 10, 11; 11, 12;
 1 0 -18 -4 115 44 -328 -164 419 244 -198 -120 9
 3.0000 2.1326 1.7321 1.3563 1.0000 0.0681 -1.0000 -1.0000 -1.0000 -1.7321 -1.9432 -2.6138
 2 1 2 9 12 11 14 19 16 5 3 3 NONPLANAR 2

NR. 53
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 10; 9, 11; 10, 12; 11, 12;
 1 0 -18 -2 111 13 -285 -50 277 40 -48 0 0
 3.0000 2.1227 1.7625 1.3417 0.3959 0.0000 0.0000 -0.5634 -1.4832 -1.6673 -2.1829 -2.7159
 1 3 3 5 10 18 19 13 14 5 4 3 PLANAR 2

NR. 54
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 10; 9, 12; 10, 11; 11, 12;
 1 0 -13 -2 115 10 -325 10 397 -76 -148 48 0
 3.0000 2.1227 1.5085 1.3417 0.6796 0.3859 0.0000 -0.8258 -1.6673 -2.0000 -2.1829 -2.3623
 1 1 7 5 8 19 17 15 16 7 3 3 NONPLANAR 2

NR. 55
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 11; 9, 12; 10, 11; 10, 12;
 1 0 -18 -2 111 20 -291 -64 317 72 -121 -18 9
 3.0000 2.1202 1.7640 1.2206 0.6938 0.2329 -0.3963 -1.0000 -1.0000 -1.0000 -1.7958 -2.0615 -2.7878
 1 3 2 8 9 14 20 20 8 8 3 3 NONPLANAR 2

NR. 56
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 10; 8, 9; 9, 12; 9, 12; 10, 11; 11, 12;
 1 0 -18 -6 117 68 -335 -262 398 322 -127 -192 -36
 3.0000 2.1149 2.0000 1.3028 1.0000 -0.2541 -1.0000 -1.0000 -1.0000 -1.8608 -2.0000 -2.3028
 3 0 2 7 12 11 12 20 18 6 3 3 NONPLANAR 4

NR. 57
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 10; 8, 9; 8, 11; 9, 12; 10, 12; 11, 12;
 1 0 -18 -2 113 18 -313 -56 390 74 -184 -36 9
 3.0000 2.0907 1.5840 1.2396 1.0800 0.1488 -0.3751 -1.0000 -1.0000 -1.2642 -1.6543 -2.1413 -2.7082
 1 2 3 9 11 12 13 18 16 7 4 3 NONPLANAR 1

NR. 58
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 9; 8, 10; 9, 12; 10, 11; 11, 12;
 1 0 -18 -4 115 40 -320 -128 375 136 -154 -36 9
 3.0000 2.0821 1.9653 1.1852 0.7538 0.1612 -0.3944 -1.0000 -1.3668 -1.7957 -2.2014 -2.3894
 2 1 4 5 10 15 16 19 16 5 3 3 NONPLANAR 2

NR. 59
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 10; 8, 11; 8, 12; 9, 11; 9, 12; 10, 11;
 1 0 -18 -2 115 14 -333 -26 453 12 -256 0 36
 3.0000 2.0814 1.4142 1.2470 1.1533 0.4586 -0.4450 -1.0000 -1.4142 -1.3019 -2.1080 -2.5853
 1 1 5 9 10 12 18 20 16 6 3 3 NONPLANAR 2

NR. 60
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 12; 9, 11; 9, 12; 10, 11;
 1 0 -18 -4 113 44 -300 -152 300 160 -48 0 0
 3.0000 2.0664 2.0000 1.4142 0.2222 0.0000 0.0000 -1.0000 -1.4142 -1.6522 -2.3000 -2.6364
 2 2 2 5 10 17 18 15 12 6 4 3 PLANAR 4

CONNECTED CUBIC GRAPHS WITH 12 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,12, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 61
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 12 8 9 8 10 9 11 10 12 11 12;
 1 0 -18 -2 115 12 -327 -12 413 -16 -193 18 9
 3.0000 2.0647 1.6058 1.1935 1.0000 0.2950 -0.1803 -1.0000 -1.2950 -2.0948 -2.1935 -2.3953
 1 1 6 6 11 16 14 20 18 6 3 3 NONPLANAR 2

NR. 62
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 11 9 10 9 12 11 12;
 1 0 -18 -2 113 16 -307 -42 354 36 -135 0 0
 3.0000 2.0545 1.7321 1.3028 0.7631 0.0000 0.0000 -1.0000 -1.0000 -1.2346 -1.7321 -2.3028 -2.5831
 1 2 4 6 12 15 17 16 7 3 3 NONPLANAR 1

NR. 63
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 8 7 9 8 11 9 10 10 12 11 12;
 1 0 -18 -8 117 96 -316 -384 240 512 192 0 0
 3.0000 2.0000 2.0000 2.0000 0.0000 0.0000 -1.0000 -1.0000 -1.0000 -2.0000 -2.0000 -2.0000 -2.0000
 4 0 0 4 12 15 16 18 12 3 3 3 PLANAR 24

NR. 64
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 8 7 9 8 11 9 12 10 11 10 12;
 1 0 -18 -4 113 48 -308 -188 348 264 -112 -96 0
 3.0000 2.0000 2.0000 1.4142 0.7321 0.0000 -1.0000 -1.0000 -1.0000 -1.4142 -2.0000 -2.7321
 2 2 0 9 12 11 16 20 16 5 3 3 NONPLANAR 4

NR. 65
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 11 8 10 8 12 9 11 10 12;
 1 0 -18 -6 117 72 -339 -306 414 532 -99 -324 -108
 3.0000 2.0000 2.0000 1.3028 1.3028 -1.0000 -1.0000 -1.0000 -1.0000 -1.0000 -2.3028 -2.3028
 3 0 0 9 18 9 6 18 18 6 3 3 NONPLANAR 36

NR. 66
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 9 7 11 8 10 8 11 9 12 10 12 11 12;
 1 0 -18 0 105 0 -232 0 144 0 0 0 0
 3.0000 2.0000 2.0000 1.0000 0.0000 0.0000 0.0000 0.0000 -1.0000 -2.0000 -2.0000 -3.0000
 0 6 0 8 0 36 0 36 0 8 4 3 PLANAR 24

NR. 67
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 9 7 11 8 10 8 12 9 12 10 11 11 12;
 1 0 -18 0 105 0 -228 -24 180 16 -48 0 0
 3.0000 2.0000 2.0000 0.7321 0.7321 0.0000 0.0000 -1.0000 -1.0000 -1.0000 -2.7321 -2.7321
 0 6 0 6 12 6 40 6 12 7 3 3 NONPLANAR 24

NR. 68
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 9 7 11 8 11 8 12 9 12 10 11 10 12;
 1 0 -18 0 109 -8 -264 40 220 -32 -48 0 0
 3.0000 2.0000 1.8136 1.0000 0.7321 0.0000 0.0000 -0.4707 -1.0000 -2.0000 -2.3429 -2.7321
 0 4 4 12 17 20 18 12 9 3 3 NONPLANAR 4

NR. 69
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 10 8 11 8 12 9 11 10 12;
 1 0 -18 -2 113 20 -315 -78 410 120 -227 -60 36
 3.0000 2.0000 1.6935 1.3028 1.0000 0.3297 -1.0000 -1.0000 -1.0000 -1.3297 -2.3028 -2.6935
 1 2 2 10 14 8 18 22 16 6 3 3 NONPLANAR 4

NR. 70
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 11 8 12 9 10 9 11 10 12 11 12;
 1 0 -18 0 109 -8 -260 32 192 0 0 0 0
 3.0000 2.0000 1.5616 1.5616 0.0000 0.0000 0.0000 0.0000 -1.0000 -2.0000 -2.5616 -2.5616
 0 4 4 2 16 19 16 16 12 7 3 3 PLANAR 8

NR. 71
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 11 8 12 9 10 9 12 10 11 11 12;
 1 0 -18 0 109 -4 -272 4 284 8 -96 0 0
 3.0000 2.9000 1.5616 1.4142 0.7321 0.0000 0.0000 -1.0000 -1.0000 -1.0000 -1.4142 -2.5616 -2.7321
 0 4 2 8 14 9 28 13 12 9 3 3 NONPLANAR 4

NR. 72
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 5 9 5 8 6 7 6 10 7 11 8 12 9 10 9 11 10 12 11 12;
 1 0 -18 0 113 -16 -304 112 304 -192 0 0 0
 3.0000 2.0000 1.5616 1.0000 1.0000 0.0000 0.0000 0.0000 -2.0000 -2.0000 -2.0000 -2.5616
 0 2 8 4 8 24 16 12 24 6 3 3 NONPLANAR 16

NR. 73
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 10 7 11 8 9 8 11 9 12 10 12 11 12;
 1 0 -18 0 109 0 -288 0 340 0 -144 0 0
 3.0000 2.0000 1.4142 1.4142 1.0000 0.0000 0.0000 -1.0000 -1.4142 -1.4142 -2.0000 -3.0000
 0 4 0 16 0 29 0 40 0 12 4 3 NONPLANAR 3

NR. 74
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 11 8 10 8 12 9 12 10 11 11;
 1 0 -18 -2 117 12 -355 -18 534 8 -387 0 108
 3.0000 2.0000 1.3028 1.3028 1.0000 1.0000 -1.0000 -1.0000 -1.0000 -2.0000 -2.0000 -2.3028 -2.3028
 1 0 6 10 12 9 14 30 18 0 3 3 NONPLANAR 12

NR. 75
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 11 8 12 9 11 9 12 10 11 10 12;
 1 0 -18 0 111 -10 -286 54 277 -54 -63 0 0
 3.0000 1.9673 1.5764 1.3645 0.7475 0.0000 0.0000 -0.4399 -1.1971 -2.1268 -2.2119 -2.6799
 0 3 5 5 13 18 16 19 14 8 3 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 12 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,12, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 76
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 111 -8 -292 40 323 -48 -118 0 9
 3.0000 1.9653 1.5772 1.1852 1.0000 0.2920 -0.3944 -0.4781 -1.3668 -1.6677 -2.3894 -2.7235
 0 3 4 8 12 13 22 17 16 7 3 3 NONPLANAR 2

NR. 77
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 113 -12 -312 76 368 -128 -136 48 0
 3.0000 1.9338 1.4142 1.3204 1.0000 0.3505 0.0000 -0.7752 -1.4142 -2.0000 -2.1586 -2.6709
 0 2 6 8 10 16 20 18 16 9 3 3 NONPLANAR 2

NR. 78
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 111 -8 -292 40 327 -56 -138 24 9
 3.0000 1.9032 1.7321 1.0000 1.0000 0.4142 -0.1939 -1.0000 -1.0000 -1.7321 -2.4142 -2.7093
 0 3 4 8 12 12 24 16 10 3 3 NONPLANAR 8

NR. 79
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 113 -10 -314 54 386 -76 -179 30 9
 3.0000 1.8164 1.5321 1.3028 1.1355 0.3473 -0.1623 -1.0000 -1.0000 -1.1188 -1.8794 -2.3028 -2.6708
 0 2 5 9 13 13 19 21 14 9 3 3 NONPLANAR 2

NR. 80
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 113 -12 -308 68 340 -88 -96 0 0
 3.0000 1.8136 1.5616 1.4142 1.0000 0.0000 0.0000 -0.4707 -1.4142 -2.0000 -2.3429 -2.5616
 0 2 6 6 14 18 14 19 20 6 3 3 NONPLANAR 4

NR. 81
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 111 -9 -316 70 447 -0 -306 0 81
 3.0000 1.7321 1.7321 1.0000 1.0000 1.0000 -1.0000 -1.0000 -1.0000 -1.7321 -1.7321 -3.0000
 0 3 0 20 0 24 0 48 0 12 3 3 NONPLANAR 48

NR. 82
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 115 -16 -328 104 387 -176 -102 24 9
 3.0000 1.7321 1.4812 1.4812 1.0000 0.4142 -0.3111 -0.3111 -1.7321 -2.1701 -2.1701 -2.4142
 0 1 8 6 12 21 12 18 24 4 3 3 NONPLANAR 8

NR. 83
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 115 -12 -340 76 479 -148 -282 84 45
 3.0000 1.7321 1.4812 1.2143 1.0000 1.0000 -0.3111 -1.0000 -1.5392 -1.7321 -2.1701 -2.6751
 0 1 6 12 10 11 22 23 16 6 3 3 NONPLANAR 4

NR. 84
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 117 -16 -360 112 532 -256 -304 192 0
 3.0000 1.5616 1.4142 1.4142 1.0000 1.0000 0.0000 -1.4142 -1.4142 -2.0000 -2.0000 -2.5616
 0 0 8 12 8 13 24 20 16 8 3 3 NONPLANAR 16

NR. 85
 1 2 3 4 5 6 7 8 9 10 11 12
 1 0 -18 0 117 -18 -354 126 486 -272 -207 162 -27
 3.0000 1.5321 1.5321 1.3028 1.3028 0.3473 0.3473 -1.0000 -1.8794 -1.8794 -2.3028 -2.3028
 0 0 9 9 9 18 19 18 18 9 3 3 NONPLANAR 18

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 1
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 8 7 9 8 9 9 10 10 11 10 12 11 13 11 14 12 13 12 14 13 14
 1 0 -21 -12 154 172 -402 -708 53 628 263 -80 -48 0 0
 3.0000 2.8951 2.5616 1.0000 0.4142 0.0000 0.0000 -0.6027 -1.0000 -1.0000 -1.0000 -1.5616 -2.2924 -2.4142
 6 7 4 0 0 0 0 0 0 0 0 0 1 8 1 PLANAR 64

NR. 2
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 7 7 8 8 9 8 10 9 10 9 11 10 12 11 13 11 14 12 13 12 14 13 14
 1 0 -21 -12 164 172 -546 -816 638 1460 52 -828 -199 152 39
 3.0000 2.8729 2.1149 1.5840 0.6180 0.6180 -0.2541 -1.0000 -1.0000 -1.3666 -1.6180 -1.6180 -1.9608 -2.0904
 6 2 4 8 4 0 0 0 0 0 0 0 7 1 PLANAR 32

NR. 3
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 7 7 8 8 9 8 10 9 11 9 12 10 11 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -8 160 108 -530 -444 770 648 -520 -340 177 52 -21
 3.0000 2.8660 1.9720 1.1777 0.6180 0.6180 0.3209 -0.4952 -1.0000 -1.3231 -1.6180 -1.6180 -1.9404 -2.5780
 4 4 6 8 4 0 0 0 0 0 0 0 7 1 PLANAR 8

NR. 4
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 7 7 8 8 9 8 10 9 11 9 12 10 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -10 164 138 -567 -624 851 1116 -480 -764 76 168 0
 3.0000 2.8650 1.9533 1.4142 0.8538 0.6180 0.0000 -0.7806 -1.0000 -1.4142 -1.6180 -1.7646 -2.0000 -2.1269
 5 2 6 9 4 0 0 0 0 0 0 0 6 1 PLANAR 16

NR. 5
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 7 7 8 8 9 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -6 156 78 -487 -280 635 288 -376 -88 84 0 0
 3.0000 2.8650 1.9533 0.8538 0.7321 0.6180 0.0000 0.0000 -0.7806 -1.0000 -1.6180 -1.7646 -2.1269 -2.7321
 3 6 6 6 6 0 0 0 0 0 0 0 6 1 NONPLANAR 32

NR. 6
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 8 7 9 8 10 9 10 9 11 10 12 11 13 11 14 12 13 12 14 13 14
 1 0 -21 -10 158 140 -477 -592 438 748 -58 -310 -41 24 0
 3.0000 2.8650 2.3154 1.0000 0.8019 0.2283 0.0000 -0.5550 -1.0000 -1.0000 -1.2253 -1.8395 -2.2470 -2.3439
 5 5 5 2 2 4 2 0 0 0 0 0 7 1 PLANAR 16

NR. 7
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 8 7 9 8 10 9 11 9 12 10 11 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -8 158 108 -494 -436 585 556 -269 -244 40 24 0
 3.0000 2.8587 2.1228 1.0000 0.7960 0.4142 0.0000 -0.3022 -1.0000 -1.0000 -1.2092 -2.0000 -2.2660 -2.4142
 4 5 6 3 4 5 2 0 0 0 0 0 7 1 PLANAR 8

NR. 8
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 7 7 8 8 9 8 10 9 11 9 12 10 11 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -4 156 44 -498 -104 738 4 -492 116 97 -40 3
 3.0000 2.8581 1.6180 1.0000 0.6180 0.6180 0.4142 0.1020 -0.6180 -1.2800 -1.6180 -1.6180 -2.4142 -2.6801
 2 6 8 8 4 0 0 0 0 0 0 0 7 1 PLANAR 8

NR. 9
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 8 7 9 8 10 9 11 9 12 10 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -10 160 142 -503 -640 495 980 180 -256 -96 0 0
 3.0000 2.8578 2.0805 1.6180 0.5713 0.0000 0.0000 -0.6180 -0.6743 -1.0000 -1.4882 -2.0000 -2.0000 -2.3470
 5 4 4 3 6 6 2 0 0 0 0 0 6 1 PLANAR 16

NR. 10
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 8 7 9 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -6 152 86 -435 -348 415 388 -88 -96 0 0 0
 3.0000 2.8578 2.0805 1.1149 0.5713 0.0000 0.0000 -0.6743 -1.0000 -1.2541 -1.4882 -2.3470 -2.8608
 3 8 2 6 4 4 0 0 0 0 0 0 6 1 NONPLANAR 32

NR. 11
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 7 7 8 8 9 8 10 9 11 9 12 10 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -6 160 74 -543 -260 883 320 -664 -84 188 -24 0
 3.0000 2.8569 1.5394 1.4142 0.7531 0.6180 0.1476 0.0000 -0.8508 -1.4142 -1.6180 -1.8552 -2.0000 -2.5911
 3 4 8 9 4 0 0 0 0 0 0 0 6 1 PLANAR 8

NR. 12
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 7 7 8 8 9 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -2 152 14 -447 36 539 -188 -192 112 -12 0 0
 3.0000 2.8569 1.5394 0.7531 0.7321 0.6180 0.1476 0.0000 0.0000 -0.8508 -1.6180 -1.8552 -2.5911 -2.7321
 1 8 8 6 6 0 0 0 0 0 0 0 6 1 NONPLANAR 16

NR. 13
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 7 6 8 8 9 8 10 9 11 9 12 10 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -8 164 104 -584 -432 1008 736 -784 -448 192 0 0
 3.0000 2.8558 1.4142 1.4142 1.4142 0.3216 0.0000 0.0000 -1.4142 -1.4142 -1.4142 -2.0000 -2.0000 -2.1774
 4 2 8 10 4 0 0 0 0 0 0 0 5 1 PLANAR 32

NR. 14
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 7 6 8 8 9 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -4 156 44 -496 -104 704 16 -368 96 0 0 0
 3.0000 2.8558 1.4142 1.4142 0.7321 0.3216 0.0000 0.0000 0.0000 -1.4142 -1.4142 -2.0000 -2.1774 -2.7321
 2 6 8 7 6 0 0 0 0 0 0 0 5 1 NONPLANAR 32

NR. 15
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 6 4 5 4 7 6 7 7 8 8 9 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 0 148 -16 -392 160 320 -256 48 0 0 0 0
 3.0000 2.8558 1.4142 0.7321 0.7321 0.3216 0.0000 0.0000 0.0000 0.0000 -1.4142 -2.1774 -2.7321 -2.7321
 0 10 8 4 8 0 0 0 0 0 0 0 5 1 NONPLANAR 128

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 16
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 9 8 10 9 11 10 12 11 13 11 14 12 13 12 14 13 14
1 0 -21 -8 154 116 -446 -492 385 604 -13 -220 -60 0 0
3.0000 2.8540 2.2361 1.0000 0.8377 0.0000 0.0000 -0.3955 -1.0000 -1.0000 -1.0000 -1.5285 -2.2361 -2.7677
4 7 2 4 4 4 4 0 0 0 0 7 1 PLANAR 32

NR. 17
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 9 8 11 9 10 10 12 11 13 11 14 12 13 12 14 13 14
1 0 -21 -10 158 144 -477 -644 398 828 206 -298 -169 -24 0
3.0000 2.8500 2.2534 1.3510 0.7454 0.0000 -0.2693 -0.4711 -1.0000 -1.0000 -1.0000 -1.8291 -2.1436 -2.4868
5 5 3 2 6 6 2 0 0 0 0 6 1 PLANAR 8

NR. 18
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 9 8 11 9 12 10 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -6 158 76 -509 -280 710 360 -426 -186 87 36 0
3.0000 2.8460 1.8658 1.0000 0.8019 0.7311 0.0000 -0.4115 -0.5550 -1.0000 -1.4343 -2.0849 -2.2470 -2.5122
3 5 7 4 6 6 2 0 0 0 0 6 1 PLANAR 8

NR. 19
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 9 8 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14 13 14
1 0 -21 -6 156 82 -487 -336 619 496 -260 -236 16 24 0
3.0000 2.8453 1.8513 1.3103 0.7965 0.3449 0.0000 -0.4817 -0.6479 -1.0000 -1.1989 -1.8185 -2.2724 -2.7288
3 6 4 6 7 5 2 0 0 0 0 6 1 PLANAR 4

NR. 20
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 9 8 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -4 154 48 -466 -152 581 160 -297 -52 48 0 0
3.0000 2.8449 1.7589 1.0000 0.8500 0.4142 0.0000 0.0000 -0.6683 -1.0000 -1.0000 -2.0823 -2.4142 -2.7033
2 7 6 4 8 4 4 0 0 0 0 6 1 NONPLANAR 16

NR. 21
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 10 9 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -8 160 110 -524 -478 696 776 -247 -400 -41 24 0
3.0000 2.8426 1.9066 1.4363 0.9027 0.1963 0.0000 -0.4710 -0.8317 -1.0000 -1.5097 -1.8151 -2.1926 -2.4643
4 4 5 5 7 6 2 0 0 0 0 6 1 PLANAR 4

NR. 22
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 11 9 12 10 13 10 14 11 13 12 14 13 14
1 0 -21 -6 160 74 -539 -264 851 332 -616 -416 172 -12 0
3.0000 2.8428 1.6968 1.2500 0.7937 0.6180 0.0750 0.0000 -1.0000 -1.0542 -1.6180 -1.8936 -2.2563 -2.4590
3 4 8 6 4 6 4 0 0 0 0 6 1 NONPLANAR 8

NR. 23
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 10 9 13 10 13 11 12 11 14 12 14 13 14
1 0 -21 -12 158 176 -454 -800 177 1064 635 -20 -112 -24 0
3.0000 2.8422 2.4142 1.5069 0.4142 0.0000 -0.4142 -0.5069 -1.0000 -1.0000 -1.0000 -1.8422 -2.0060 -2.4142
6 5 2 0 4 8 4 0 0 0 0 6 1 PLANAR 32

NR. 24
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 10 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -8 158 112 -494 -488 553 728 -61 -240 -8 24 0
3.0000 2.8422 2.0000 1.5069 0.4142 0.4142 0.0000 -0.5069 -1.0000 -1.0000 -1.0000 -1.8422 -2.4142 -2.4142
4 5 4 3 8 7 2 0 0 0 0 6 1 PLANAR 16

NR. 25
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 13 12 14 13 14
1 0 -21 -8 162 108 -554 -468 845 812 -481 -516 48 72 0
3.0000 2.8422 1.7321 1.5069 1.0000 0.4142 0.0000 -0.5069 -1.0000 -1.0000 -1.7321 -1.8422 -2.0000 -2.4142
4 3 6 7 6 5 2 0 0 0 0 6 1 PLANAR 16

NR. 26
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 14 12 13 13 14
1 0 -21 -4 154 52 -474 -196 637 308 -337 -184 40 24 0
3.0000 2.8422 1.5069 1.3429 1.0000 0.4142 0.0000 -0.5069 -0.5293 -1.0000 -1.0000 -1.9422 -2.4142 -2.8136
2 7 4 8 8 2 4 0 0 0 0 6 1 PLANAR 16

NR. 27
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 14 12 13 13 14
1 0 -21 -4 153 40 -518 -72 785 -48 -485 108 80 -24 0
3.0000 2.8422 1.5069 1.0000 1.0000 0.4142 0.4142 0.0000 -0.5069 -1.0000 -1.8422 -2.0000 -2.4142 -2.4142
2 5 10 4 4 9 2 0 0 0 0 6 1 NONPLANAR 16

NR. 28
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 10 9 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -6 156 82 -487 -332 615 456 -244 -144 36 0 0
3.0000 2.8419 1.8404 1.4142 0.6180 0.2115 0.0000 0.0000 -0.8651 -1.0000 -1.4142 -1.6180 -2.2902 -2.7384
3 6 4 6 6 4 0 0 0 0 6 1 NONPLANAR 16

NR. 29
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 13 10 14 11 14 12 13 12 14
1 0 -21 -4 156 46 -496 -134 712 132 -435 -20 91 -12 0
3.0000 2.8413 1.4638 1.3557 0.8002 0.4773 0.1525 0.0000 -0.7376 -1.0000 -1.2816 -2.0953 -2.2746 -2.7021
2 6 7 6 6 5 4 0 0 0 0 6 1 NONPLANAR 8

NR. 30
1 2 1 3 1 4 2 3 2 4 3 5 4 5 5 6 6 7 6 8 7 9 8 7 9 8 10 9 10 9 11 10 12 11 13 11 14 12 13 12 14 13 14
1 0 -21 -8 160 112 -526 -488 710 760 -368 -464 29 88 15
3.0000 2.7913 2.1149 1.0000 1.0000 0.6180 -0.2541 -0.3820 -1.0000 -1.0000 -1.6180 -1.7913 -1.8608 -2.6180
4 4 4 5 4 4 4 0 4 8 4 6 2 PLANAR 16

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 31
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -6 160 78 -535 -308 799 436 -528 -232 144 40 -12
3.0000 2.7700 1.9145 1.1701 0.7817 0.6180 0.2133 -0.5346 -0.6889 -1.0000 -1.6180 -1.8183 -2.3266 -2.4812
3 4 6 4 6 5 3 4 8 10 4 6 2 PLANAR 4

NR. 32
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 -8 162 112 -550 -508 781 872 -321 -444 20 48 0
3.0000 2.7669 1.8687 1.6624 0.7574 0.3625 0.0000 -0.4249 -1.0000 -1.1626 -1.4559 -1.8356 -2.0000 -2.4989
4 3 4 5 6 6 4 2 4 12 12 4 5 2 PLANAR 8

NR. 33
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 154 56 -474 -220 601 280 -285 -88 48 0 0
3.0000 2.7669 1.8687 1.2533 0.6449 0.3625 0.0000 0.0000 -0.7673 -1.0000 -1.1626 -1.8356 -2.2033 -2.9275
2 7 2 8 2 10 0 4 8 8 8 5 2 NONPLANAR 16

NR. 34
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 10; 9, 11; 10, 12; 11, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -8 162 112 -554 -504 837 872 -561 -640 136 168 0
3.0000 2.7574 2.0781 1.0000 1.0000 0.8156 0.0000 -1.0000 -1.0000 -1.0000 -1.0000 -1.3079 -1.8039 -2.0000 -2.5394
4 3 4 6 4 4 8 4 0 8 16 8 6 2 PLANAR 16

NR. 35
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 11; 9, 10; 10, 12; 11, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -10 164 144 -561 -690 755 1274 -201 -844 -144 158 39
3.0000 2.7435 2.1648 1.4569 0.8925 0.5298 -0.2690 -1.0000 -1.0000 -1.0000 -1.4604 -1.7754 -1.9695 -2.3131
5 2 3 5 4 6 8 4 4 12 12 4 5 2 PLANAR 4

NR. 36
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -4 160 44 -542 -124 854 92 -584 12 149 -12 -9
3.0000 2.7411 1.6180 1.3028 0.7103 0.6180 0.4142 -0.2314 -0.6180 -1.0000 -1.6180 -2.2200 -2.3028 -2.4142
2 4 8 4 6 5 2 7 10 13 12 4 6 2 PLANAR 4

NR. 37
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 -6 162 78 -561 -322 892 526 -581 -308 115 48 0
3.0000 2.7367 1.6952 1.5306 0.9016 0.5438 0.0000 -0.3267 -0.7293 -1.1528 -1.5450 -2.0000 -2.3226 -2.3516
3 3 6 5 7 4 2 6 12 18 14 4 5 2 PLANAR 4

NR. 38
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -2 154 22 -477 -50 636 22 -321 24 36 0 0
3.0000 2.7367 1.5306 1.3636 0.6694 0.5438 0.0000 0.0000 -0.3267 -1.1334 -1.1528 -2.0000 -2.3316 -2.8996
1 7 4 8 3 6 4 4 16 12 12 8 5 2 NONPLANAR 8

NR. 39
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 7; 6, 8; 6, 9; 7, 8; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 -8 164 112 -576 -528 880 1024 -368 -704 -192 0 0
3.0000 2.7321 1.8136 1.4142 1.4142 0.0000 0.0000 -0.4707 -0.7321 -1.4142 -1.4142 -2.0000 -2.0000 -2.3429
4 2 4 6 8 4 0 4 16 24 16 4 5 2 PLANAR 16

NR. 40
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 7; 6, 8; 6, 9; 7, 8; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 156 56 -500 -232 688 368 -320 -192 0 0 0
3.0000 2.7321 1.7093 1.4142 1.0000 0.0000 0.0000 -0.7321 -0.7321 -0.8061 -1.4142 -2.0000 -2.0000 -2.9032
2 6 2 9 4 6 0 8 16 16 16 8 5 2 NONPLANAR 16

NR. 41
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 5; 4, 7; 6, 8; 7, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 0 148 0 -408 0 448 0 -144 0 0 0 0
3.0000 2.7321 1.4142 1.4142 0.7321 0.0000 0.0000 0.0000 0.0000 0.0000 -0.7321 -1.4142 -1.4142 -2.7321 -3.0000
0 10 0 12 0 8 0 16 0 32 0 16 5 2 NONPLANAR 64

NR. 42
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 8; 7, 9; 8, 10; 9, 11; 9, 12; 10, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -6 160 84 -541 -374 823 658 -517 -468 80 106 15
3.0000 2.7254 1.9032 1.2470 1.0000 0.6744 -0.1939 -0.4450 -1.0000 -1.0000 -1.2885 -1.8019 -2.1112 -2.7093
3 4 3 7 6 6 4 4 8 16 20 8 6 2 PLANAR 8

NR. 43
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -6 164 76 -593 -302 1067 474 -957 -284 384 42 -45
3.0000 2.7254 1.7321 1.2470 1.0000 0.6744 0.4142 -0.4450 -1.0000 -1.2885 -1.7321 -1.8019 -2.1112 -2.4142
3 2 7 7 3 6 9 4 6 16 14 4 5 2 PLANAR 4

NR. 44
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 12; 10, 13; 11, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -6 162 80 -565 -340 922 572 -658 -350 179 52 -12
3.0000 2.7225 1.7554 1.4659 0.9297 0.5203 0.1721 -0.4066 -1.0000 -1.0984 -1.5386 -1.8286 -2.1259 -2.5675
3 3 5 6 6 6 6 10 14 12 4 5 2 PLANAR 2

NR. 45
1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 160 46 -544 -142 860 128 -579 4 131 -24 0
3.0000 2.7205 1.6336 1.3557 0.8437 0.4773 0.2271 0.0000 -0.7376 -1.0000 -1.7104 -2.0953 -2.1041 -2.6104
2 4 7 4 6 8 4 8 12 12 12 8 5 2 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 46
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 5 8 6 7 6 8 7 9 8 10 9 11 9 12 10 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -8 162 116 -550 -556 753 1036 -165 -588 -183 0 0
3.0000 2.7205 1.8618 1.7321 1.0000 0.0000 0.0000 -0.5140 -1.0000 -1.0000 -1.4896 -1.7321 -2.0000 -2.5787
4 3 2 5 8 8 4 0 8 24 24 8 5 2 PLANAR 16

NR. 47
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 5 8 6 7 6 8 7 9 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -4 154 50 -470 -284 577 484 -181 -256 -63 0 0
3.0000 2.7205 1.8618 1.3429 1.0000 0.0000 0.0000 -0.5140 -0.5293 -1.0000 -1.0000 -1.4896 -2.5787 -2.8136
2 7 0 6 12 0 8 0 16 16 16 16 5 2 NONPLANAR 32

NR. 48
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 10 9 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -8 164 112 -578 -520 910 964 -552 -688 69 148 15
3.0000 2.7114 1.9899 1.4280 0.9499 0.6180 -0.1134 -0.5927 -1.0000 -1.1967 -1.6180 -1.7651 -1.9759 -2.4354
4 2 4 6 5 5 7 8 12 18 14 4 5 2 PLANAR 2

NR. 49
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 11 9 12 10 13 10 14 11 13 12 14 13 14
1 0 -21 -6 164 78 -595 -324 1075 548 -956 -360 380 64 -48
3.0000 2.7109 1.6688 1.4142 1.0000 0.6180 0.3998 -0.4990 -1.0000 -1.4142 -1.6180 -1.7553 -2.0000 -2.5251
3 2 6 8 4 4 8 12 8 12 16 8 5 2 NONPLANAR 4

NR. 50
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 10 9 13 10 13 11 12 11 14 12 14 13 14
1 0 -21 -12 162 176 -510 -832 421 1320 343 -532 -280 8 12
3.0000 2.7093 2.4939 1.4142 0.7623 0.1939 -0.2714 -1.0000 -1.0000 -1.0000 -1.4142 -1.6870 -1.9032 -2.2978
6 3 2 2 0 4 8 4 8 24 24 8 5 2 PLANAR 16

NR. 51
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 10 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -8 162 112 -546 -504 753 816 -349 -416 75 64 -12
3.0000 2.7093 2.1358 1.4142 0.6622 0.4142 0.1939 -0.6622 -1.0000 -1.0000 -1.4142 -1.9032 -2.1358 -2.4142
4 3 4 3 4 7 6 6 16 24 16 4 5 2 PLANAR 8

NR. 52
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 13 12 14 13 14
1 0 -21 -8 166 112 -610 -536 1073 1104 -805 -928 168 192 -36
3.0000 2.7093 1.7321 1.4142 1.4142 0.4142 0.1939 -1.0000 -1.0000 -1.4142 -1.4142 -1.7321 -1.9032 -2.4142
4 1 4 9 6 3 8 10 8 12 12 4 5 2 PLANAR 8

NR. 53
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 12 10 13 11 14 12 14 13 14
1 0 -21 -4 158 56 -534 -232 861 384 -633 -244 180 40 -12
3.0000 2.7093 1.5994 1.4142 1.0000 0.5744 0.1939 -0.4026 -1.0000 -1.0000 -1.4142 -1.8529 -1.9032 -2.9183
2 5 2 12 0 10 4 8 16 16 8 8 5 2 PLANAR 8

NR. 54
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 14 12 13 13 14
1 0 -21 -4 162 44 -574 -124 1013 68 -857 128 264 -112 12
3.0000 2.7093 1.4142 1.4142 1.0000 0.4142 0.4142 0.1939 -1.0000 -1.4142 -1.4142 -1.9032 -2.4142 -2.4142
2 3 8 6 4 5 10 10 8 16 16 4 5 2 NONPLANAR 8

NR. 55
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 10 9 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -6 160 82 -535 -348 771 528 -428 -260 84 36 0
3.0000 2.7078 1.9864 1.3515 0.6434 0.6180 0.0000 -0.3124 -0.8151 -1.0000 -1.6180 -1.8103 -2.0969 -2.6544
3 4 4 4 6 6 4 12 16 16 16 8 5 2 NONPLANAR 8

NR. 56
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 6 5 7 6 8 7 9 7 10 8 11 8 12 9 11 9 13 10 13 10 14 11 14 12 13 12 14
1 0 -21 -4 160 48 -546 -168 882 220 -648 -104 201 16 -21
3.0000 2.7075 1.6180 1.3809 0.7964 0.6180 0.4142 -0.5052 -0.6180 -1.0000 -1.6180 -1.8140 -2.4142 -2.5656
2 4 6 5 8 3 6 14 12 12 16 8 5 2 NONPLANAR 4

NR. 57
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 8 8 10 9 11 9 12 10 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -8 162 114 -548 -530 759 926 -302 -548 -18 94 15
3.0000 2.7061 2.0929 1.4618 0.7812 0.5368 -0.1840 -0.5894 -1.0000 -1.0000 -1.4309 -1.7264 -2.1658 -2.4622
4 3 3 4 6 6 7 8 12 18 14 4 5 2 PLANAR 2

NR. 58
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 8 8 10 9 11 9 12 10 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -10 164 146 -555 -716 667 1324 136 -648 -344 -48 0
3.0000 2.7006 2.1149 1.7204 0.9360 0.0000 -0.2541 -0.5136 -1.0000 -1.0000 -1.5885 -1.8608 -2.0000 -2.2548
5 2 2 3 6 8 6 6 16 24 16 4 5 2 PLANAR 4

NR. 59
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 8 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -6 156 90 -483 -416 531 648 -28 -220 -63 0 0
3.0000 2.7004 2.0835 1.4880 0.6816 0.0000 0.0000 -0.4653 -0.6800 -1.0000 -1.0000 -1.7876 -2.1862 -2.8344
3 6 0 8 8 4 12 16 16 16 8 5 2 NONPLANAR 8

NR. 60
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 8 8 9 8 10 9 11 10 12 11 13 11 14 12 13 12 14 13 14
1 0 -21 -8 162 116 -550 -556 769 1036 -281 -708 -116 120 36
3.0000 2.6955 2.0861 1.4142 1.0000 0.4973 -0.4391 -0.5720 -1.0000 -1.0000 -1.4142 -1.5241 -2.2296 -2.5141
4 3 2 4 8 8 8 4 8 20 16 4 5 2 PLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 61
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 10 8 11 9 10 9 12 11 13 11 14 12 13 12 14 13 14
 1 0 -21 -8 160 120 -525 -576 646 1000 -64 -472 -83 64 15
 3.0000 2.66878 2.1149 1.6180 0.6180 0.4771 -0.2541 -0.6180 -1.0000 -1.0000 -1.4211 -1.6180 -1.8608 -2.7438
 4 4 0 5 4 12 12 4 8 12 16 8 5 2 PLANAR 16

NR. 62
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 9 8 11 9 11 10 12 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -10 164 148 -557 -742 675 1446 179 -864 -592 -138 -9
 3.0000 2.6774 2.1815 1.5048 1.2470 -0.1058 -0.4450 -0.4796 -1.0000 -1.0000 -1.4413 -1.8019 -1.9750 -2.3630
 5 2 1 3 8 12 6 0 8 24 24 8 5 2 PLANAR 8

NR. 63
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 8 7 9 7 10 8 9 8 11 9 12 10 11 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -4 162 46 -572 -150 983 166 -770 -36 210 -6 -9
 3.0000 2.6770 1.4849 1.4498 1.0000 0.6361 0.2607 -0.2047 -0.6607 -1.2734 -1.7145 -1.8212 -2.3354 -2.4968
 2 3 7 6 5 5 8 10 16 23 16 4 5 2 PLANAR 2

NR. 64
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 8 7 9 7 10 8 9 8 11 9 12 10 12 10 13 11 13 11 14 12 14 13 14
 1 0 -21 -4 160 50 -546 -186 866 252 -595 -102 152 6 -9
 3.0000 2.6721 1.7042 1.4198 0.8247 0.5052 0.2972 -0.2837 -0.6845 -1.1027 -1.5448 -1.8922 -2.2285 -2.6867
 2 4 5 6 5 6 7 13 19 20 14 4 5 2 PLANAR 1

NR. 65
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 8 7 9 7 10 8 9 8 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -2 158 16 -521 4 766 -136 -406 138 31 -12 0
 3.0000 2.6692 1.5321 1.3573 0.7502 0.4142 0.3473 0.0000 -0.3064 -1.0000 -1.7567 -1.8794 -2.4142 -2.6736
 1 5 7 4 5 7 8 12 22 18 16 8 5 2 NONPLANAR 4

NR. 66
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 9 8 11 9 10 10 12 11 13 11 14 12 13 12 14 13 14
 1 0 -21 -12 164 180 -530 -904 398 1572 836 -228 -327 -96 -9
 3.0000 2.6691 2.1149 2.1149 0.6180 -0.2541 -0.2541 -0.5240 -1.0000 -1.0000 -1.6180 -1.8608 -1.8608 -2.1451
 6 2 0 0 4 12 12 8 16 24 16 4 5 2 PLANAR 16

NR. 67
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 10 8 9 8 11 10 12 11 13 11 14 12 13 12 14 13 14
 1 0 -21 -8 160 120 -518 -592 574 1080 176 -504 -363 -96 -9
 3.0000 2.6691 2.1149 1.6180 1.0000 -0.2541 -0.3820 -0.5240 -0.6180 -1.0000 -1.0000 -1.8608 -2.1451 -2.6180
 4 4 0 1 12 12 4 8 16 24 12 5 2 NONPLANAR 16

NR. 68
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 7 6 8 6 9 7 10 8 10 8 11 9 12 9 13 10 12 11 13 11 14 12 14 13 14
 1 0 -21 -6 164 78 -587 -328 991 548 -720 -348 156 72 0
 3.0000 2.6691 1.8136 1.4142 1.0000 0.6180 0.0000 -0.4707 -0.5240 -1.4142 -1.6180 -2.0000 -2.1451 -2.3429
 3 2 6 5 5 6 8 8 30 18 4 5 2 PLANAR 4

NR. 69
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 7 6 8 7 9 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -2 156 22 -499 -60 691 72 -348 -48 36 0 0
 3.0000 2.6691 1.5206 1.4142 1.0000 0.2845 0.0000 0.0000 -0.5240 -0.7282 -1.4142 -2.1451 -2.2312 -2.8458
 1 6 4 6 7 5 4 16 20 20 20 8 5 2 NONPLANAR 8

NR. 70
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 7 6 8 6 9 7 10 8 10 8 11 9 11 9 12 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -6 162 82 -561 -362 868 618 -509 -364 68 48 0
 3.0000 2.6638 1.8967 1.4807 0.9312 0.4288 0.0000 -0.4224 -0.6748 -1.1614 -1.5973 -1.9572 -2.0000 -2.5881
 3 3 4 5 6 5 6 14 24 26 16 4 5 2 PLANAR 2

NR. 71
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 7 6 9 7 8 8 10 9 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -2 154 26 -473 -102 604 146 -273 -48 36 0 0
 3.0000 2.6638 1.7280 1.3979 0.6896 0.3474 0.0000 0.0000 -0.6214 -0.7931 -1.2026 -1.7985 -2.5784 -2.8326
 1 7 2 6 8 1 12 12 24 20 16 8 5 2 NONPLANAR 4

NR. 72
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 7 6 8 6 9 7 10 8 10 8 11 9 12 9 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -4 160 48 -540 -164 812 176 -484 -56 96 0 0
 3.0000 2.6607 1.8478 1.2777 0.7654 0.5626 0.0000 0.0000 -0.7489 -0.7654 -1.8478 -2.0000 -2.1316 -2.6205
 2 4 6 3 6 6 6 16 24 24 20 8 4 2 NONPLANAR 8

NR. 73
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 6 4 5 4 7 5 4 7 6 8 7 9 7 10 8 9 8 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 0 152 -8 -444 72 484 -112 -148 48 3 0 0
 3.0000 2.6607 1.5929 1.2777 0.5626 0.3855 0.0000 0.0000 0.0000 -0.7489 -1.1524 -2.1316 -2.6205 -2.8260
 0 8 4 4 8 2 12 16 16 32 8 16 4 2 NONPLANAR 16

NR. 74
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 8 7 9 7 10 8 11 8 12 9 10 9 11 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -6 162 80 -559 -336 868 506 -592 -270 158 42 -9
 3.0000 2.6549 2.0428 1.2343 0.7949 0.6180 0.1548 -0.3970 -0.7700 -1.1908 -1.6180 -1.7908 -2.2582 -2.4748
 3 3 5 4 4 4 9 17 23 25 16 4 5 2 PLANAR 1

NR. 75
 1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 6 5 7 6 8 7 9 7 10 8 11 8 12 9 11 9 12 10 13 10 14 11 13 12 14 13 14
 1 0 -21 -4 162 46 -570 -146 961 118 -724 58 171 -36 0
 3.0000 2.6539 1.7116 1.3411 0.8015 0.6180 0.2456 0.0000 -0.6466 -1.4856 -1.6180 -1.7750 -2.3661 -2.4803
 2 3 7 5 4 6 10 16 18 20 20 8 5 2 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;

LINE 2: EDGES;

LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;

LINE 4: EIGENVALUES;

LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 76

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 10; 8, 11; 9, 12; 9, 13; 10, 11; 11, 14; 12, 13; 12, 14; 13, 14; 1 0 -21 -10 162 148 -529 -716 562 1236 186 -578 -329 -48 0 3.0000 2.6538 2.3550 1.4751 0.9448 0.0000 -0.2600 -0.5930 -1.0000 -1.0000 -1.4979 -1.6370 -1.9555 -2.4853 5 3 1 2 4 8 10 8 16 24 16 4 5 2 PLANAR 4

NR. 77

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 11; 9, 12; 9, 13; 10, 12; 10, 14; 11, 13; 12, 14; 13, 14; 1 0 -21 -10 160 144 -501 -646 495 918 -53 -464 -96 58 15 3.0000 2.6511 2.5276 1.0000 0.9033 0.4142 -0.2739 -0.6108 -1.0000 -1.0000 -1.3772 -1.6593 -2.1608 -2.4142 5 4 3 1 0 4 12 24 36 28 8 5 2 PLANAR 8

NR. 78

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14; 1 0 -21 -6 160 80 -529 -322 739 394 -481 -152 140 6 -9 3.0000 2.6511 2.1987 1.0000 0.7135 0.4142 0.4142 -0.2739 -1.0000 -1.0000 -1.3772 -1.9122 -2.4142 -2.4142 3 4 5 2 2 3 8 18 30 32 18 4 5 2 PLANAR 4

NR. 79

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 13; 12, 14; 13, 14; 1 0 -21 -6 164 80 -589 -350 1003 610 -741 -364 192 30 -9 3.0000 2.6511 1.7321 1.5962 1.0000 0.4142 0.4142 -0.2739 -1.0000 -1.3772 -1.5157 -1.7321 -2.2631 -2.4142 3 2 5 6 6 5 10 16 16 18 14 4 5 2 PLANAR 4

NR. 80

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14; 1 0 -21 -2 156 24 -505 -74 751 62 -505 -4 132 -6 -9 3.0000 2.6511 1.7321 1.0000 1.0000 0.5321 0.4142 -0.2739 -0.6527 -1.0000 -1.3772 -1.7321 -2.4142 -2.8794 1 6 3 9 2 4 14 12 28 20 12 8 5 2 PLANAR 4

NR. 81

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14; 1 0 -21 -2 160 12 -545 46 855 -278 -509 308 -8 -22 3 3.0000 2.6511 1.5962 1.0000 1.0000 0.4142 0.4142 0.1826 -0.2739 -1.3772 -1.5157 -2.2631 -2.4142 -2.4142 1 4 9 3 4 7 10 18 18 24 18 4 5 2 NONPLANAR 4

NR. 82

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14; 1 0 -21 -4 158 50 -514 -170 713 122 -424 14 79 -12 0 3.0000 2.6487 2.0597 0.9262 0.6673 0.6180 0.1710 0.0000 -0.5715 -1.0592 -1.6180 -1.8722 -2.2546 -2.7153 2 5 3 2 6 8 20 28 24 20 8 5 2 NONPLANAR 4

NR. 83

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 6; 5, 7; 6, 8; 7, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 13; 10, 14; 11, 14; 12, 13; 12, 14; 1 0 -21 -2 158 16 -519 4 752 -142 -428 138 74 -34 3 3.0000 2.6482 1.7508 1.0000 0.7488 0.6180 0.3185 0.1309 -0.6551 -0.7853 -1.6180 -2.2042 -2.2840 -2.6686 1 5 7 3 5 6 9 20 22 20 20 8 5 2 NONPLANAR 2

NR. 84

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14; 1 0 -21 -6 164 82 -591 -380 1019 764 -764 -660 152 184 24 3.0000 2.6458 1.7462 1.4142 1.2028 0.7292 -0.1661 -0.5710 -1.0000 -1.0000 -1.4142 -1.9024 -2.2229 -2.4614 3 2 4 6 9 8 6 9 18 24 16 4 5 2 PLANAR 2

NR. 85

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 7; 6, 8; 6, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14; 1 0 -21 -8 164 112 -572 -516 848 892 -420 -512 8 49 0 3.0000 2.6454 2.1440 1.4142 0.9524 0.3060 0.0000 -0.4264 -0.8205 -1.4142 -1.5448 -1.8989 -2.0000 -2.3573 4 2 4 4 3 3 8 18 30 32 18 4 5 2 PLANAR 2

NR. 86

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 7; 6, 9; 7, 9; 8, 10; 8, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14; 1 0 -21 -4 156 56 -492 -228 624 280 -276 -84 36 0 0 3.0000 2.6454 2.0624 1.2189 0.6717 0.2816 0.0000 0.0000 -0.6475 -0.8747 -1.4646 -1.9014 -2.2334 -2.8583 2 6 2 5 3 5 8 20 28 24 20 8 5 2 NONPLANAR 4

NR. 87

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 7; 6, 8; 6, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 11; 10, 14; 12, 13; 12, 14; 13, 14; 1 0 -21 -6 164 78 -587 -320 991 468 -760 -172 236 -24 0 3.0000 2.6442 1.9274 1.4142 0.7081 0.6180 0.1161 0.0000 -1.0000 -1.4142 -1.6180 -1.9565 -2.0000 -2.4594 3 2 6 5 2 6 12 16 20 28 24 8 4 2 NONPLANAR 4

NR. 88

1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 8; 6, 7; 6, 9; 7, 9; 8, 10; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14; 1 0 -21 -2 156 22 -499 -48 679 -28 -304 84 0 0 0 3.0000 2.6442 1.7478 1.3342 0.6180 0.3507 0.0000 0.0000 0.0000 -1.0612 -1.6180 -1.8680 -2.2695 -2.8782 1 6 4 6 2 10 8 16 24 24 16 16 4 2 NONPLANAR 8

NR. 89

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 7; 6, 9; 7, 10; 8, 9; 8, 11; 9, 12; 10, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14; 1 0 -21 -6 162 86 -563 -418 874 848 -439 -646 -101 64 15 3.0000 2.6419 1.7710 1.5038 1.3180 0.3342 -0.2658 -0.5896 -0.7217 -1.0000 -1.5063 -1.5700 -2.3592 -2.5563 3 3 2 5 12 8 5 7 18 28 18 4 5 2 PLANAR 4

NR. 90

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 11; 9, 10; 9, 12; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14; 1 0 -21 -12 162 176 -506 -832 377 1288 463 -380 -284 -48 0 3.0000 2.6412 2.5616 1.4812 0.7237 0.0000 -0.3111 -0.5892 -1.0000 -1.0000 -1.5616 -1.7757 -2.0000 -2.1701 6 3 2 1 0 0 8 32 48 32 8 5 2 PLANAR 16

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 91
1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 8; 7 11; 8 11; 9 12; 9 13; 10 12; 10 13; 11 14; 12 14; 13 14;
1 0 -21 -8 154 120 -442 -520 321 592 47 -184 -60 0 0
3.0000 2.6412 2.5366 1.0000 0.7237 0.0000 0.0000 -0.5892 -0.6932 -1.0000 -1.0000 -1.7757 -2.0000 -2.8434
4 7 0 2 0 0 0 16 32 32 32 16 5 2 NONPLANAR 32

NR. 92
1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 9; 7 10; 8 11; 8 12; 9 13; 10 13; 11 12; 11 14; 12 14; 13 14;
1 0 -21 -8 158 120 -490 -568 465 888 175 -280 -160 -24 0
3.0000 2.6412 2.2784 1.4812 0.7237 0.0000 -0.3111 -0.5892 -0.6421 -1.0000 -1.0000 -1.7757 -2.1701 -2.6813
4 5 0 2 8 8 16 16 16 8 5 2 NONPLANAR 16

NR. 93
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 7; 6 8; 6 9; 7 10; 8 9; 8 11; 9 12; 10 13; 10 14; 11 12; 11 13; 12 14; 13 14;
1 0 -21 -8 162 112 -542 -500 713 768 -285 -372 20 48 0
3.0000 2.6412 2.2784 1.3174 0.7237 0.4142 0.0000 -0.5892 -0.7046 -1.0000 -1.7757 -1.3912 -2.0000 -2.4142
4 3 4 2 2 1 4 20 40 40 20 4 4 2 PLANAR 8

NR. 94
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 9; 6 10; 7 8; 7 11; 8 11; 9 12; 9 13; 10 12; 10 13; 11 14; 12 14; 13 14;
1 0 -21 -4 154 56 -462 -220 513 200 -237 -48 36 0 0
3.0000 2.6412 2.2171 0.8041 0.7237 0.4142 0.0000 0.0000 -0.5892 -1.0000 -1.1880 -1.7757 -2.4142 -2.8332
2 7 2 3 2 1 8 24 32 32 24 8 4 2 NONPLANAR 16

NR. 95
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 7; 6 8; 6 9; 7 10; 8 11; 8 12; 9 11; 9 13; 10 12; 10 13; 11 14; 12 14; 13 14;
1 0 -21 -4 158 56 -526 -232 789 344 -517 -212 116 48 0
3.0000 2.6412 1.9537 1.0000 0.7237 0.0000 -0.4341 -0.5892 -1.0000 -1.6349 -1.7757 -2.0000 -2.8847
2 5 2 9 0 6 8 20 32 24 16 8 5 2 PLANAR 8

NR. 96
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 7; 6 8; 6 9; 7 10; 8 11; 8 12; 9 13; 9 14; 10 11; 10 13; 11 12; 12 14; 13 14;
1 0 -21 -8 166 112 -602 -532 989 1016 -617 -684 132 144 0
3.0000 2.6412 1.8912 1.7321 0.7237 0.7046 0.0000 -0.5892 -1.0000 -1.3174 -1.7321 -1.7757 -2.0000 -2.2784
4 1 4 6 4 5 12 16 20 24 16 4 4 2 PLANAR 8

NR. 97
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 7; 6 8; 6 9; 7 10; 8 11; 8 12; 9 13; 9 14; 10 11; 10 13; 11 14; 12 13; 12 14;
1 0 -21 -4 162 44 -566 -120 929 12 -685 148 148 -48 0
3.0000 2.6412 1.8912 1.0000 0.7237 0.7046 0.4142 0.0000 -0.5892 -1.3174 -1.7757 -2.0000 -2.2784 -2.4142
2 3 8 3 2 7 12 16 24 32 20 4 4 2 NONPLANAR 8

NR. 98
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 6; 4 5; 4 7; 6 8; 7 9; 7 10; 8 11; 8 12; 9 11; 9 13; 10 12; 10 13; 11 14; 12 14; 13 14;
1 0 -21 0 150 0 -430 -0 493 0 -229 0 36 0 0
3.0000 2.6412 1.7757 1.0000 0.7237 0.5892 0.0000 0.0000 -0.5892 -0.7237 -1.0000 -1.7757 -2.6412 -3.0000
0 9 0 10 0 10 40 0 48 0 16 5 2 NONPLANAR 16

NR. 99
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 8; 6 10; 7 8; 9 11; 9 12; 10 13; 10 14; 11 13; 11 14; 12 13; 12 14;
1 0 -21 -4 158 56 -522 -236 741 352 -345 -120 36 0 0
3.0000 2.6412 1.7321 1.6554 0.7237 0.2108 0.0000 0.0000 -0.5892 -1.0000 -1.7321 -1.7757 -2.0000 -2.8662
2 5 2 7 4 9 8 16 24 16 16 8 4 2 NONPLANAR 16

NR. 100
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 6; 4 5; 4 7; 6 8; 7 9; 7 10; 8 11; 8 12; 9 11; 9 13; 10 12; 10 14; 11 14; 12 13; 13 14;
1 0 -21 0 154 -12 -470 128 553 -300 -109 88 -12 0 0
3.0000 2.6412 1.6554 1.0000 0.7237 0.4142 0.2108 0.0000 0.0000 0.0000 -0.5892 -1.7757 -2.0000 -2.4142 -2.8662
0 7 6 4 2 11 8 16 32 16 24 8 4 2 NONPLANAR 16

NR. 101
1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 7; 6 9; 7 10; 8 9; 8 11; 9 12; 10 13; 10 14; 11 13; 11 14; 12 13; 12 14;
1 0 -21 -4 160 54 -548 -239 872 456 -579 -352 91 60 0
3.0000 2.6394 1.6300 1.3557 1.2994 0.4773 0.0000 -0.5163 -0.7376 -1.0000 -1.1927 -2.0953 -2.1222 -2.7378
2 4 3 6 10 3 4 14 20 20 20 8 5 2 NONPLANAR 8

NR. 102
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 7; 6 8; 6 9; 7 10; 8 9; 8 11; 9 12; 10 13; 10 14; 11 13; 11 14; 12 13; 12 14;
1 0 -21 -6 160 82 -531 -340 731 440 -384 -132 72 0 0
3.0000 2.6386 2.1677 1.2603 0.6180 0.3932 0.0000 0.0000 -0.6841 -1.2395 -1.6180 -1.8790 -2.0000 -2.6572
3 4 4 3 2 2 8 24 32 32 24 8 4 2 NONPLANAR 8

NR. 103
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 8; 6 9; 6 10; 7 11; 8 11; 9 12; 9 13; 10 12; 10 13; 11 14; 12 14; 13 14;
1 0 -21 -2 152 26 -443 -84 479 -4 -184 48 0 0 0
3.0000 2.6386 2.0827 0.7909 0.6180 0.3537 0.0000 0.0000 0.0000 -1.0000 -1.3519 -1.6180 -2.6165 -2.8576
1 8 2 4 2 2 16 16 32 32 16 16 4 2 NONPLANAR 16

NR. 104
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 7; 6 8; 6 9; 7 10; 8 11; 8 12; 9 11; 9 13; 10 12; 10 14; 11 14; 12 13; 13 14;
1 0 -21 -4 160 48 -540 -160 820 128 -548 24 116 -24 0
3.0000 2.6381 1.9672 1.0000 0.8949 0.4631 0.2694 0.0000 -0.6400 -1.2161 -1.4933 -2.0000 -2.2970 -2.5862
2 4 6 3 4 3 12 22 24 28 24 8 4 2 NONPLANAR 4

NR. 105
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 6; 4 5; 4 7; 6 8; 7 9; 7 10; 8 11; 8 12; 9 11; 9 13; 10 13; 10 14; 11 14; 12 13; 12 14;
1 0 -21 0 152 -8 -444 80 480 -176 -148 88 -12 0 0
3.0000 2.6381 1.7939 0.8949 0.6508 0.3418 0.2694 0.0000 0.0000 -0.8400 -1.2161 -2.0850 -2.5862 -2.8616
0 8 4 4 4 5 16 12 32 24 16 16 4 2 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 106
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 10 8 11 9 11 9 12 10 13 11 14 12 13 12 14 13 14;
 1 0 -21 -6 162 86 -567 -406 906 780 -563 -582 51 112 15
 3.0000 2.6373 1.8927 1.4396 1.1019 0.5410 -0.1655 -0.4987 -1.0000 -1.0000 -1.4949 -1.7554 -1.9915 -2.7065
 3 3 2 7 6 10 9 9 20 22 14 4 5 2 PLANAR 2

NR. 107
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 10 8 11 9 12 9 13 10 12 11 13 11 14 12 14 13 14;
 1 0 -21 -6 162 84 -561 -388 866 700 -502 -430 87 72 0
 3.0000 2.6349 1.8925 1.5878 0.8267 0.5294 0.0000 -0.4842 -1.0000 -1.0000 -1.4379 -1.6848 -2.3331 -2.5313
 3 3 3 4 8 9 12 11 14 22 16 4 5 2 PLANAR 2

NR. 108
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 10 8 11 9 12 9 13 10 14 11 12 11 14 12 13 13 14;
 1 0 -21 -6 160 88 -537 -418 759 754 -325 -464 -28 70 15
 3.0000 2.6289 2.0257 1.4812 0.8896 0.4696 -0.3111 -0.4790 -0.7336 -1.0000 -1.4256 -1.6398 -2.1701 -2.7358
 3 4 1 5 7 9 9 13 22 22 14 4 5 2 PLANAR 2

NR. 109
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 10 8 11 9 12 9 13 10 14 11 12 11 13 12 14 13 14;
 1 0 -21 -4 158 56 -518 -252 737 428 -393 -240 63 36 0
 3.0000 2.6284 1.8815 1.4415 0.8017 0.4936 0.0000 -0.4494 -0.6847 -1.0000 -1.1769 -1.7532 -2.4716 -2.7108
 2 5 2 4 10 6 12 14 20 20 16 8 5 2 NONPLANAR 4

NR. 110
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 11 8 11 8 12 9 11 10 13 10 14 12 13 12 14 13 14;
 1 0 -21 -10 162 148 -525 -716 522 1192 266 -378 -161 20 12
 3.0000 2.6230 2.3588 1.6568 0.5683 0.2852 -0.3972 -0.5122 -1.0000 -1.0000 -1.4272 -1.6029 -2.1859 -2.3669
 5 3 1 0 4 12 16 12 8 12 12 4 4 2 PLANAR 8

NR. 111
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 11 9 13 10 11 10 14 12 13 12 14 13 14;
 1 0 -21 -6 166 80 -621 -360 1174 700 -1110 -586 495 172 -84
 3.0000 2.6220 1.6696 1.5321 1.0000 0.7976 0.3473 -1.0000 -1.0000 -1.0000 -1.6315 -1.8794 -2.0000 -2.4576
 3 1 5 8 5 7 14 14 14 20 20 8 5 2 NONPLANAR 4

NR. 112
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 11 9 12 10 13 10 14 11 13 12 14 13 14;
 1 0 -21 -6 164 86 -599 -416 1067 872 -840 -768 188 192 0
 3.0000 2.6204 1.6746 1.4142 1.4142 0.6180 0.0000 -0.7212 -1.0000 -1.4142 -1.4142 -1.6180 -1.8693 -2.7046
 3 2 2 10 6 8 10 10 20 24 20 5 2 NONPLANAR 8

NR. 113
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 13 11 14 12 14 13 14;
 1 0 -21 -4 160 56 -550 -260 886 516 -592 -424 85 100 15
 3.0000 2.6174 1.6130 1.5061 1.1708 0.6180 -0.2228 -0.5166 -0.6180 -1.0000 -1.4593 -1.6180 -2.3467 -2.7489
 2 4 2 7 10 6 10 14 24 20 12 8 5 2 PLANAR 4

NR. 114
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 13 12 14 13 14;
 1 0 -21 -8 166 116 -606 -584 1005 1252 -557 -1072 -136 208 60
 3.0000 2.6167 1.9319 1.4142 1.4142 0.5176 -0.4573 -0.5176 -1.0000 -1.4142 -1.4142 -1.6966 -1.9319 -2.4628
 4 1 2 7 8 8 10 11 18 24 16 4 5 2 PLANAR 2

NR. 115
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 14 12 13 13 14;
 1 0 -21 -4 162 52 -578 -216 1021 376 -869 -264 312 48 -36
 3.0000 2.6161 1.5904 1.4142 1.1494 0.5694 0.3756 -0.4959 -1.0000 -1.1140 -1.4142 -1.7769 -2.2099 -2.7042
 2 3 4 8 6 7 13 15 20 20 18 8 5 2 NONPLANAR 2

NR. 116
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 13 9 14 10 11 10 12 11 13 12 14 13 14;
 1 0 -21 -8 164 82 -591 -372 1023 680 -836 -948 -488 316 112 -48
 3.0000 2.6144 1.9165 1.4142 0.9099 0.6180 0.3334 -0.7230 -1.0000 -1.2813 -1.4142 -1.6180 -2.3068 -2.4631
 3 2 4 6 6 6 14 18 16 20 20 8 4 2 NONPLANAR 4

NR. 117
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 13 9 14 10 11 10 13 11 12 12 14 13 14;
 1 0 -21 -8 166 114 -604 -558 1003 1138 -638 -948 -488 316 112 -48
 3.0000 2.6140 2.3264 1.5057 0.9137 0.8409 -0.3560 -0.5847 -1.0000 -1.2867 -1.4689 -1.8866 -1.9496 -2.3684
 4 1 3 6 6 7 11 17 20 20 14 4 4 2 PLANAR 4

NR. 118
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 7 6 9 7 10 8 11 8 12 9 13 9 14 10 11 10 13 11 14 12 13 12 14;
 1 0 -21 -4 162 50 -572 -198 975 314 -778 -176 262 22 -21
 3.0000 2.6140 1.6460 1.5057 0.8409 0.7015 0.3067 -0.3560 -1.0000 -1.1101 -1.2867 -1.9496 -2.3684 -2.5441
 2 3 5 8 8 7 13 19 12 24 22 4 4 2 NONPLANAR 4

NR. 119
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 9 8 11 9 12 10 11 10 13 11 14 12 13 12 14 13 14;
 1 0 -21 -8 164 116 -574 -568 842 1104 -304 -760 -187 52 15
 3.0000 2.6127 2.1149 1.4325 1.1957 0.2732 -0.2541 -0.5544 -1.0000 -1.0000 -1.5076 -1.8608 -1.9744 -2.4777
 4 2 2 4 7 10 9 9 22 30 18 4 5 2 PLANAR 2

NR. 120
 1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 9 8 11 9 12 10 12 10 13 11 13 11 14 12 14 13 14;
 1 0 -21 -8 162 118 -544 -574 683 1022 -34 -452 -110 46 15
 3.0000 2.6094 2.1248 1.7339 0.6611 0.3832 -0.3933 -0.5384 -0.6898 -1.0000 -1.5114 -1.8186 -1.9858 -2.5750
 4 3 1 2 7 10 10 15 24 26 16 4 5 2 PLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 121
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 9 8 11 9 12 10 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -8 164 114 -572 -542 840 992 -383 -652 -37 112 24
3.0000 2.6062 2.1831 1.4332 0.9318 0.5147 -0.2945 -0.4795 -1.0000 -1.0000 -1.5753 -1.8317 -2.1204 -2.3676
4 2 3 3 5 9 10 15 24 26 16 4 5 2 PLANAR 2

NR. 122
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 10 8 11 8 12 9 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -6 162 86 -559 -418 834 828 -363 -582 -109 52 15
3.0000 2.6055 1.8892 1.5760 1.1376 0.3256 -0.3902 -0.4842 -0.6554 -1.0000 -1.2726 -1.8798 -2.3271 -2.5246
5 3 2 12 11 7 12 18 24 22 8 5 2 NONPLANAR 2

NR. 123
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 9 8 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -6 160 86 -531 -396 715 656 -280 -320 12 36 0
3.0000 2.6031 2.1210 1.4612 0.7424 0.3593 0.0000 -0.5727 -0.6937 -1.0000 -1.2568 -1.9381 -2.1667 -2.6589
3 4 2 2 8 8 10 18 24 24 20 8 4 2 NONPLANAR 4

NR. 124
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 10 8 11 8 12 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -6 162 84 -557 -392 830 724 -438 -498 23 112 24
3.0000 2.5992 2.0259 1.4611 0.8019 0.7028 -0.3708 -0.5550 -0.6274 -1.0000 -1.2340 -2.0858 -2.2470 -2.4711
3 3 3 2 10 10 8 18 20 20 20 8 4 2 NONPLANAR 4

NR. 125
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 10 8 11 8 12 9 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -4 158 60 -526 -284 773 520 -421 -328 36 39 0
3.0000 2.5973 1.8819 1.4491 1.0000 0.3564 0.0000 -0.4189 -1.0000 -1.0000 -1.0000 -1.8431 -2.1237 -2.8988
2 5 0 8 4 16 8 12 24 24 16 16 4 2 NONPLANAR 8

NR. 126
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 11 8 10 8 12 9 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -8 164 118 -572 -598 804 1224 -103 -832 -441 -72 0
3.0000 2.5944 2.0509 1.5231 1.3454 0.0000 -0.4631 -0.5149 -0.6511 -1.0000 -1.5669 -1.7140 -2.1625 -2.4413
4 2 1 3 11 13 8 9 18 24 16 4 5 2 PLANAR 4

NR. 127
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 11 8 10 8 11 9 12 10 13 11 14 12 13 12 14 13 14
1 0 -21 -6 164 84 -589 -402 983 822 -641 -700 32 170 39
3.0000 2.5926 1.8559 1.4235 1.2470 0.6248 -0.4450 -0.5315 -0.6350 -1.0000 -1.6709 -1.8919 -2.1247 -2.5347
3 2 3 5 10 10 6 18 24 20 16 8 5 2 PLANAR 4

NR. 128
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 11 8 12 9 10 9 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -10 166 146 -583 -726 798 1396 -127 -866 -217 116 39
3.0000 2.5922 2.2608 1.6337 0.8889 0.4256 -0.3925 -0.5648 -1.0000 -1.3931 -1.5079 -1.8484 -1.9008 -2.1937
5 1 2 2 3 5 11 19 30 32 18 4 5 2 PLANAR 4

NR. 129
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 11 8 10 8 12 9 12 10 13 11 13 11 14 12 14 13 14
1 0 -21 -6 166 82 -619 -390 1142 832 -963 -798 247 272 39
3.0000 2.5922 1.6337 1.5430 1.2103 0.8889 -0.1925 -0.5648 -1.0000 -1.1569 -1.5079 -1.9484 -2.1937 -2.4039
3 1 4 7 9 9 13 22 28 18 4 5 2 NONPLANAR 4

NR. 130
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 11 8 12 9 11 9 13 10 11 10 14 12 13 12 14 13 14
1 0 -21 -8 164 116 -574 -560 842 1020 -364 -560 65 96 -9
3.0000 2.5846 2.1367 1.6581 0.6180 0.5266 0.0928 -0.6757 -1.0000 -1.3619 -1.4559 -1.6180 -1.9885 -2.5168
4 2 2 4 4 8 16 18 20 28 24 8 4 2 NONPLANAR 4

NR. 131
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 11 8 12 9 10 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -8 160 116 -518 -528 614 800 -176 -404 -35 64 15
3.0000 2.5831 2.4142 1.2346 0.6180 0.6180 -0.3820 -0.4142 -0.7631 -1.0000 -1.6180 -1.6180 -2.0545 -2.6180
4 4 2 2 2 1 6 21 40 40 20 4 4 2 PLANAR 8

NR. 132
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 8 7 11 8 12 9 10 9 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -8 164 112 -574 -508 882 832 -628 -512 245 108 -45
3.0000 2.5831 2.3028 1.2346 0.6180 0.6180 0.4142 -0.7631 -1.0000 -1.3028 -1.6180 -1.6180 -2.0545 -2.4142
4 2 4 4 0 2 12 26 32 32 24 8 4 2 NONPLANAR 16

NR. 133
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 11 8 10 8 12 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -4 160 56 -542 -272 814 580 -432 -464 -35 64 15
3.0000 2.5831 1.6180 1.6180 1.2346 0.4142 -0.3820 -0.6180 -0.6180 -0.7631 -1.0000 -2.0545 -2.4142 -2.6180
2 4 2 3 16 7 6 23 20 20 20 4 4 2 PLANAR 8

NR. 134
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 11 8 10 8 12 9 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -4 160 60 -558 -292 926 604 -648 -516 101 124 15
3.0000 2.5831 1.6180 1.5374 1.2346 0.6180 -0.1507 -0.6180 -0.7631 -1.0000 -1.4891 -1.6180 -2.0545 -2.8976
2 4 0 11 4 15 8 12 28 28 8 8 4 2 NONPLANAR 8

NR. 135
1 2 3 1 3 1 4 2 3 2 4 3 5 4 6 5 7 5 8 6 9 6 10 7 9 7 11 8 10 8 12 9 13 10 14 11 12 11 14 12 13 13 14
1 0 -21 -4 164 48 -598 -184 1082 300 -940 -216 349 48 -45
3.0000 2.5831 1.6180 1.3028 1.2346 0.6180 0.4142 -0.6180 -0.7631 -1.0000 -1.6180 -2.0545 -2.3028 -2.4142
2 2 6 5 8 10 10 21 24 16 20 12 4 2 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 136

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 11; 10, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -6 164 84 -589 -398 983 774 -657 -556 104 78 -9
3.0000 2.5818 1.8526 1.5793 1.1109 0.3787 0.1098 -0.5259 -1.0000 -1.1634 -1.4310 -1.7761 -2.1806 -2.5361
3 2 3 5 8 11 14 13 16 26 24 8 4 2 NONPLANAR 2

NR. 137

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 -8 166 112 -602 -528 1001 988 -737 -752 216 188 -24
3.0000 2.5812 2.1861 1.2790 1.0000 0.6549 0.1188 -1.0000 -1.0000 -1.0000 -1.0000 -1.6705 -1.8750 -2.0000 -2.2745
4 1 4 5 2 7 16 18 20 28 24 8 4 2 NONPLANAR 4

NR. 138

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 13; 10, 13; 10, 14; 11, 12; 12, 14; 13, 14;
1 0 -21 -8 162 114 -544 -522 727 842 -322 -492 -2 82 15
3.0000 2.5796 2.3593 1.2090 0.8539 0.5429 -0.2587 -0.4023 -1.0000 -1.0000 -1.5016 -1.7942 -2.1106 -2.4773
4 3 3 2 2 5 11 19 30 32 18 4 5 2 PLANAR 2

NR. 139

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -6 160 88 -537 -410 755 702 -357 -444 -16 70 15
3.0000 2.5790 2.1794 1.2470 1.0000 0.4817 -0.3627 -0.4450 -0.6059 -1.0000 -1.5819 -1.8919 -1.9146 -2.7750
3 4 1 5 4 8 10 22 32 24 16 8 5 2 PLANAR 4

NR. 140

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 -10 166 148 -581 -752 754 1472 86 -782 -345 -4 12
3.0000 2.5787 2.1317 1.8794 0.9135 0.1573 -0.3473 -0.4899 -1.0000 -1.3729 -1.5321 -1.6895 -2.0000 -2.2288
5 1 1 3 5 10 16 17 20 24 16 4 4 2 PLANAR 4

NR. 141

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 -6 162 84 -561 -380 870 636 -582 -390 151 64 -12
3.0000 2.5787 2.1317 1.2631 0.9135 0.5157 0.1573 -0.4899 -1.0000 -1.1826 -1.3729 -1.6895 -2.2288 -2.5962
3 3 3 4 5 6 16 19 24 32 20 4 4 2 NONPLANAR 4

NR. 142

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 11; 10, 12; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 -8 164 116 -570 -568 802 1068 -226 -608 -107 64 15
3.0000 2.5784 2.1149 1.6895 0.8538 0.3585 -0.2541 -0.5116 -1.0000 -1.0000 -1.4164 -1.8608 -2.2028 -2.3494
4 2 2 2 7 14 15 13 14 18 14 4 4 2 PLANAR 2

NR. 143

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 11; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -6 160 90 -535 -440 719 808 -180 -428 -123 0 0
3.0000 2.5779 2.0410 1.6180 0.9391 0.0000 0.0000 -0.5944 -0.6180 -1.0000 -1.2927 -1.9036 -2.0000 -2.7674
3 4 0 4 8 14 12 14 20 16 16 8 5 2 NONPLANAR 9

NR. 144

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 12; 10, 13; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 -6 164 82 -587 -372 979 664 -720 -440 216 80 -24
3.0000 2.5760 2.0042 1.4142 0.9363 0.5149 0.2417 -0.5627 -1.0000 -1.1481 -1.4142 -1.3916 -2.2210 -2.4497
3 2 4 4 6 10 15 19 18 22 22 8 4 2 NONPLANAR 2

NR. 145

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 13; 10, 13; 10, 14; 11, 14; 12, 13; 12, 14;
1 0 -21 -6 162 82 -559 -354 862 532 -615 -286 199 40 -21
3.0000 2.5757 2.1878 1.1514 0.8187 0.5008 0.3528 -0.4518 -1.0000 -1.1196 -1.4334 -1.8510 -2.1700 -2.5614
3 3 4 3 3 6 16 23 24 28 24 8 4 2 NONPLANAR 2

NR. 146

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -4 158 58 -516 -278 711 518 -338 -340 14 70 15
3.0000 2.5753 1.9752 1.4306 0.7816 0.6426 -0.4314 -0.5151 -0.6537 -0.7495 -1.0000 -1.8899 -2.4368 -2.7287
2 5 1 3 12 6 11 25 26 16 18 8 5 2 PLANAR 4

NR. 147

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 11; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -4 162 54 -576 -242 987 478 -750 -424 174 130 15
3.0000 2.5753 1.6582 1.4306 1.1651 0.7816 -0.1576 -0.5151 -0.6537 -1.0000 -1.5593 -1.8899 -2.1064 -2.7287
2 3 3 7 8 11 11 15 26 24 18 8 5 2 NONPLANAR 4

NR. 148

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 13; 10, 14; 11, 12; 12, 14; 13, 14;
1 0 -21 -8 162 116 -542 -552 689 956 -133 -520 -144 32 12
3.0000 2.5741 2.3042 1.4142 0.9273 0.2754 -0.3438 -0.6056 -0.6379 -1.0000 -1.4142 -1.8434 -2.2116 -2.4388
4 3 2 1 6 8 10 19 26 26 16 4 4 2 PLANAR 4

NR. 149

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 11; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 -8 166 116 -602 -584 965 1220 -457 -944 -184 80 12
3.0000 2.5741 2.0303 1.4142 1.4142 0.2754 -0.1346 -0.6379 -1.0000 -1.4142 -1.4142 -1.5794 -2.2116 -2.3163
4 1 2 5 8 11 14 12 14 26 24 8 4 2 NONPLANAR 4

NR. 150

1 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 5; 4, 6; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 13; 10, 14; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 158 60 -526 -280 777 476 -461 -268 108 40 -12
3.0000 2.5741 1.9781 1.4142 0.8067 0.3830 0.2754 -0.6379 -0.7355 -1.0000 -1.4142 -1.5358 -2.2116 -2.8965
2 5 0 8 2 14 14 16 26 26 12 12 4 2 NONPLANAR 4

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 151
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 9; 7 11; 8 12; 8 13; 9 12; 10 11; 10 14; 11 13; 12 14; 13 14;
 1 0
 3.0000 2.5741 1.7122 1.4142 1.2335 0.3087 0.2754 -0.5650 -0.6379 -1.0000 -1.4142 -2.0829 -2.2116 -2.6065
 2 3 4 4 10 11 12 17 18 26 24 8 4 2 NONPLANAR 4

NR. 152
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 8; 7 11; 8 12; 9 13; 9 14; 10 13; 10 14; 11 12; 11 13; 12 14;
 1 0
 3.0000 2.5737 2.3615 0.8779 0.8019 0.5983 0.0000 -0.5550 -0.6100 -1.0000 -1.1763 -1.9818 -2.2470 -2.6434
 3 5 3 2 4 2 10 26 32 32 24 8 4 2 NONPLANAR 8

NR. 153
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 9; 7 11; 8 11; 8 12; 9 13; 10 12; 10 14; 11 13; 12 14; 13 14;
 1 0
 3.0000 2.5735 1.9993 1.5950 0.8678 0.4936 -0.2902 -0.4926 -0.6397 -1.0000 -1.5511 -1.7463 -2.2016 -2.6077
 3 3 2 3 9 11 12 20 20 18 16 8 4 2 PLANAR 2

NR. 154
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 9; 7 11; 8 12; 8 13; 9 12; 10 13; 10 14; 11 12; 11 14; 13 14;
 1 0
 3.0000 2.5733 1.9190 1.5325 0.9317 0.7196 -0.1297 -0.4677 -1.0000 -1.1670 -1.4331 -1.7257 -2.2388 -2.5140
 3 2 3 5 8 10 15 15 18 26 18 4 4 2 NONPLANAR 2

NR. 155
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 9; 7 11; 8 11; 8 12; 9 13; 10 12; 10 14; 11 14; 12 13; 13 14;
 1 0
 3.0000 2.5727 1.8758 1.3186 0.7865 0.7328 0.2988 -0.4952 -0.7388 -1.0000 -1.4424 -2.0713 -2.3298 -2.5078
 2 3 5 3 8 10 13 23 20 22 22 8 4 2 NONPLANAR 2

NR. 156
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 9; 7 11; 8 12; 8 13; 9 12; 10 13; 10 14; 11 13; 11 14; 12 14;
 1 0
 3.0000 2.5726 1.6913 1.3728 1.0000 0.7684 0.2726 -0.3030 -1.0000 -1.0000 -1.7116 -1.9473 -2.2170 -2.4988
 2 2 6 5 6 12 15 16 20 26 22 8 4 2 NONPLANAR 2

NR. 157
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 9; 7 11; 8 12; 8 13; 9 14; 10 12; 10 13; 11 12; 11 14; 13 14;
 1 0
 3.0000 2.5711 1.6624 1.6018 0.8762 0.7574 0.0000 -0.4249 -0.7261 -1.0000 -1.4559 -1.8575 -2.4654 -2.4989
 2 3 4 4 10 10 14 17 20 24 20 8 4 2 NONPLANAR 4

NR. 158
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 11; 8 12; 9 11; 9 13; 10 13; 10 14; 12 14; 13 14;
 1 0
 3.0000 2.5657 2.2957 1.3153 0.6478 0.3457 0.0000 -0.4958 -0.6879 -1.0000 -1.2599 -1.7644 -2.2106 -2.7517
 3 5 1 2 4 8 12 22 28 24 20 8 5 2 NONPLANAR 4

NR. 159
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 11; 9 12; 10 13; 10 14; 12 14; 13 14;
 1 0
 3.0000 2.5652 1.9973 1.5788 0.9709 0.3221 0.0000 -0.4049 -1.0000 -1.1743 -1.4707 -1.6752 -1.9734 -2.7359
 3 3 1 6 5 13 17 13 18 24 22 8 4 2 NONPLANAR 2

NR. 160
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 11; 9 14; 10 12; 10 13; 12 14; 13 14;
 1 0
 3.0000 2.5643 1.8796 1.2226 1.0000 0.7089 0.1909 -0.2957 -1.0000 -1.0000 -1.6344 -1.7986 -2.1337 -2.7039
 2 3 4 6 4 12 18 14 24 28 20 8 4 2 NONPLANAR 4

NR. 161
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 11; 9 14; 10 12; 10 14; 12 13; 13 14;
 1 0
 3.0000 2.5642 1.9888 1.2775 0.8880 0.4542 0.2796 -0.4795 -0.6849 -1.0000 -1.5091 -1.7442 -2.3267 -2.7080
 2 4 3 4 6 10 17 19 24 22 22 12 4 2 NONPLANAR 2

NR. 162
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 13; 8 14; 9 11; 9 12; 10 13; 10 14; 11 12; 13 14;
 1 0
 3.0000 2.5616 2.5616 1.7321 0.4142 0.0000 0.0000 -1.0000 -1.0000 -1.0000 -1.5616 -1.5616 -1.7321 -2.4142
 6 3 0 0 0 12 24 12 0 0 0 0 4 2 PLANAR 96

NR. 163
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 12; 9 14; 10 13; 10 14; 11 12; 13 14;
 1 0
 3.0000 2.5616 2.3073 1.5356 0.5645 0.4142 0.0000 -0.5645 -1.0000 -1.0000 -1.5356 -1.5616 -2.3073 -2.4142
 4 3 2 1 4 10 16 17 20 24 16 4 4 2 PLANAR 4

NR. 164
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 11; 8 12; 9 13; 9 14; 10 13; 10 14; 11 13; 12 14;
 1 0
 3.0000 2.5616 2.2924 1.0000 0.6027 0.4142 0.0000 0.0000 -1.0000 -1.0000 -1.0000 -1.5616 -2.4142 -2.8951
 2 7 0 4 0 8 16 20 32 32 16 16 4 2 NONPLANAR 32

NR. 165
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 13; 8 14; 9 11; 9 13; 10 12; 10 14; 11 12; 13 14;
 1 0
 3.0000 2.5616 2.0000 1.7321 1.0000 0.4142 0.0000 -1.0000 -1.0000 -1.0000 -1.5616 -1.7321 -2.0000 -2.4142
 4 1 2 5 6 13 20 10 8 24 24 8 4 2 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 166
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 12; 9 14; 10 13; 10 14; 11 14; 12 13;
 1 0 -21 -4 162 48 -566 -168 921 160 -693 12 196 -48 0
 3.0000 2.5616 2.0000 1.0000 1.0000 0.4142 0.4142 0.0000 -1.0000 -1.0000 -1.5616 -2.0000 -2.4142 -2.4142
 2 3 6 2 4 12 18 22 16 28 28 8 4 2 NONPLANAR 8

NR. 167
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 13; 8 14; 9 11; 9 12; 10 13; 10 14; 11 13; 12 14;
 1 0 -21 -4 162 52 -570 -220 941 364 -657 -192 144 0 0
 3.0000 2.5616 1.7321 1.5616 1.0000 0.4142 0.0000 0.0000 -1.0000 -1.0000 -1.5616 -1.7321 -2.4142 -2.5616
 2 3 4 4 8 12 20 10 16 32 24 8 4 2 NONPLANAR 16

NR. 168
 1 2; 1 3; 1 4; 2 3; 2 4; 3 5; 4 6; 5 7; 5 8; 6 9; 6 10; 7 11; 7 12; 8 13; 8 14; 9 11; 9 13; 10 12; 10 14; 11 14; 12 13;
 1 0 -21 -4 166 44 -626 -132 1213 68 -1177 168 444 -144 0
 3.0000 2.5616 1.7321 1.0000 1.0000 0.4142 0.0000 0.4142 0.0000 -1.0000 -1.5616 -1.7321 -2.0000 -2.0000 -2.4142
 2 1 8 6 0 15 24 8 16 40 24 0 4 2 NONPLANAR 16

NR. 169
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 9; 8 11; 9 12; 10 11; 10 13; 11 14; 12 13; 12 14; 13 14;
 1 0 -21 -4 164 52 -604 -224 1116 424 -976 -352 304 96 0
 3.0000 2.5478 1.4574 1.4142 1.4142 0.7858 0.0000 -0.3007 -0.8823 -1.4142 -1.4142 -1.9292 -2.0000 -2.6789
 2 2 4 9 6 8 12 18 28 27 14 3 5 3 PLANAR 2

NR. 170
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 9; 8 11; 9 12; 10 12; 10 13; 11 13; 11 14; 12 14; 13 14;
 1 0 -21 -4 164 50 -598 -206 1070 360 -879 -262 256 54 -9
 3.0000 2.5444 1.6510 1.4339 1.2025 0.6626 0.1145 -0.3297 -0.8139 -1.1612 -1.6300 -1.8530 -2.3265 -2.4948
 2 2 5 6 8 8 12 20 27 26 14 3 5 3 PLANAR 1

NR. 171
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 10; 8 11; 9 12; 9 13; 10 12; 11 13; 11 14; 12 14; 13 14;
 1 0 -21 -4 164 48 -594 -180 1034 244 -804 -80 241 4 -21
 3.0000 2.5399 1.6792 1.6180 0.7541 0.6180 0.4142 -0.3635 -0.6180 -1.2802 -1.6180 -2.0715 -2.2580 -2.4142
 2 2 6 4 6 12 14 18 26 26 14 3 5 3 PLANAR 2

NR. 172
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 9; 8 11; 9 12; 10 13; 10 14; 11 12; 11 13; 12 14; 13 14;
 1 0 -21 -4 162 54 -572 -242 947 450 -654 -324 122 42 -9
 3.0000 2.5368 1.7960 1.4238 1.2024 0.3650 0.1788 -0.4794 -0.7188 -1.0000 -1.5497 -1.9691 -2.1940 -2.6918
 2 3 3 6 8 10 10 19 31 28 14 3 5 3 PLANAR 1

NR. 173
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 9; 8 11; 9 12; 10 13; 10 14; 11 13; 11 14; 12 13; 12 14;
 1 0 -21 -2 160 22 -551 -72 891 96 -608 -48 108 0 0
 3.0000 2.5317 1.5527 1.4142 1.2112 0.4608 0.0000 0.0000 -0.5737 -1.1483 -1.4142 -1.8781 -2.4524 -2.7039
 1 4 4 6 9 6 15 22 28 26 18 6 4 3 NONPLANAR 2

NR. 174
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 10; 8 11; 9 12; 9 13; 10 14; 11 12; 11 14; 12 13; 13 14;
 1 0 -21 -4 162 52 -568 -220 923 360 -643 -208 163 36 -9
 3.0000 2.5310 1.8997 1.4361 0.8608 0.5971 0.1646 -0.4100 -0.6599 -1.1341 -1.4381 -1.9263 -2.3561 -2.5648
 2 3 4 4 8 8 14 23 28 26 14 3 4 3 PLANAR 1

NR. 175
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 11; 8 12; 9 10; 9 11; 10 13; 11 14; 12 13; 12 14; 13 14;
 1 0 -21 -4 162 52 -568 -220 923 360 -635 -220 131 24 -9
 3.0000 2.5283 1.9313 1.2115 1.1953 0.3412 0.2594 -0.3921 -0.6336 -1.1037 -1.6011 -1.7756 -2.4379 -2.5228
 2 3 4 4 8 8 14 23 28 26 14 3 5 3 PLANAR 2

NR. 176
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 11; 8 12; 9 10; 9 13; 10 11; 11 14; 12 13; 12 14; 13 14;
 1 0 -21 -4 162 52 -570 -212 933 308 -657 -128 164 16 -12
 3.0000 2.5272 1.9319 1.4142 0.8102 0.5176 0.2961 -0.4059 -0.5176 -1.4142 -1.4355 -1.9319 -2.1118 -2.6803
 2 3 4 5 4 12 16 19 28 27 14 3 5 3 PLANAR 2

NR. 177
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 7; 6 9; 7 10; 8 10; 8 11; 9 12; 9 13; 10 14; 11 12; 11 13; 12 14; 13 14;
 1 0 -21 -2 160 20 -547 -46 849 4 -521 36 103 -12 0
 3.0000 2.5269 1.7018 1.4556 0.7406 0.6388 0.1200 0.0000 -0.6203 -0.8614 -1.6636 -2.0714 -2.2499 -2.7170
 1 4 5 4 7 11 13 24 28 24 18 6 4 3 NONPLANAR 2

NR. 178
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 9; 6 10; 7 8; 7 9; 8 11; 9 12; 10 12; 10 13; 11 13; 11 14; 12 14; 13 14;
 1 0 -21 -4 160 56 -542 -256 806 428 -440 -192 101 24 -9
 3.0000 2.5246 1.9195 1.6180 0.6180 0.4142 0.2938 -0.5083 -0.6180 -1.0000 -1.5436 -1.6180 -2.4142 -2.6860
 2 4 2 4 8 9 14 23 30 27 14 3 5 3 PLANAR 2

NR. 179
 1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 5; 4 7; 5 8; 6 9; 6 10; 7 8; 7 9; 8 11; 9 12; 10 13; 10 14; 11 13; 11 14; 12 13; 12 14;
 1 0 -21 -2 158 24 -521 -88 750 112 -622 -10 79 -12 0
 3.0000 2.5185 1.8410 1.4423 0.6907 0.4142 0.1879 0.0000 -0.6798 -1.0000 -1.2117 -2.0214 -2.4142 -2.7675
 1 5 3 4 8 9 15 24 30 26 18 6 4 3 NONPLANAR 2

NR. 180
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 6; 4 7; 4 8; 5 7; 6 9; 7 10; 8 9; 8 11; 9 12; 10 13; 10 14; 11 13; 11 14; 12 13; 12 14;
 1 0 -21 0 156 -8 -496 72 656 -160 -272 96 0 0 0
 3.0000 2.5128 1.6382 1.4142 0.7321 0.4045 0.0000 0.0000 0.0000 -0.9068 -1.4142 -2.0000 -2.6488 -2.7321
 0 6 4 4 8 8 20 20 32 28 16 12 4 3 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;

LINE 2: EDGES;

LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;

LINE 4: EIGENVALUES;

LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 181

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 10, 9, 13, 10, 14, 11, 12, 11, 13, 12, 14, 13, 14; |
| 1 0 -21 -4 160 54 -542 -226 814 316 -519 -142 124 18 -9 |
| 3.0000 2.5106 2.1117 1.2266 0.7894 0.4914 0.2672 -0.4189 -0.5719 -1.1107 -1.5093 -1.7897 -2.2775 -2.7190 |
| 2 4 3 4 4 8 16 26 33 28 14 3 4 3 PLANAR 1 |

NR. 182

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 10, 9, 13, 10, 14, 11, 13, 11, 14, 12, 13, 12, 14; |
| 1 0 -21 -2 158 22 -517 -66 720 42 -381 16 64 -12 0 |
| 3.0000 2.5098 1.9642 1.2362 0.7387 0.3500 0.2591 0.0000 -0.6589 -0.7679 -1.4238 -2.0460 -2.4740 -2.6873 |
| 1 5 4 8 8 17 26 30 26 18 6 4 3 NONPLANAR 2 |

NR. 183

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 11, 9, 13, 10, 11, 10, 14, 12, 13, 12, 14, 13, 14; |
| 1 0 -21 -4 166 48 -626 -184 1197 268 -1109 -104 396 -32 -12 |
| 3.0000 2.5003 1.6710 1.4142 1.1791 0.6860 0.2576 -0.1393 -1.0000 -1.4142 -1.6539 -1.8675 -2.1535 -2.4798 |
| 2 1 6 7 5 10 18 21 24 27 20 6 4 3 NONPLANAR 1 |

NR. 184

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 11, 9, 12, 10, 13, 10, 14, 11, 13, 12, 14, 13, 14; |
| 1 0 -21 -4 164 52 -598 -228 1062 416 -852 -300 233 60 -9 |
| 3.0000 2.4927 1.7709 1.4722 1.1416 0.6180 0.1110 -0.3734 -0.7468 -1.3335 -1.6180 -1.6314 -2.3848 -2.5187 |
| 2 2 4 6 9 8 14 24 28 28 20 6 4 3 NONPLANAR 2 |

NR. 185

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 9, 6, 10, 7, 8, 7, 11, 8, 12, 9, 10, 9, 13, 10, 14, 11, 12, 11, 13, 12, 14, 13, 14; |
| 1 0 -21 -4 158 56 -516 -236 711 308 -427 -152 107 24 -9 |
| 3.0000 2.4909 2.2470 1.0000 0.8019 0.5550 0.2470 -0.5550 -0.6566 -0.8019 -1.4450 -1.8342 -2.2470 -2.8019 |
| 2 5 2 4 2 5 14 32 42 31 14 3 4 3 PLANAR 4 |

NR. 186

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 9, 6, 10, 7, 8, 7, 11, 8, 12, 9, 13, 9, 14, 10, 13, 10, 14, 11, 12, 11, 13, 12, 14; |
| 1 0 -21 -2 156 24 -491 -78 629 24 -321 28 55 -12 0 |
| 3.0000 2.4903 2.1411 0.9190 0.7424 0.3891 0.3097 0.0000 -0.6844 -0.7154 -1.4364 -1.8308 -2.6420 -2.6825 |
| 1 6 3 2 5 5 21 28 36 30 18 6 4 3 NONPLANAR 4 |

NR. 187

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 6, 3, 5, 3, 6, 4, 7, 4, 8, 5, 7, 6, 9, 7, 10, 8, 10, 8, 11, 9, 12, 9, 13, 10, 14, 11, 12, 11, 13, 12, 14, 13, 14; |
| 1 0 -21 0 154 -8 -462 72 497 -152 -157 88 -12 0 0 |
| 3.0000 2.4893 2.0000 1.0000 0.4142 0.4142 0.2892 0.0000 0.0000 -1.0000 -1.0000 -2.4142 -2.4142 -2.7785 |
| 0 7 4 0 8 8 20 28 32 32 16 12 4 3 NONPLANAR 16 |

NR. 188

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 13, 9, 14, 10, 11, 10, 12, 11, 13, 12, 14, 13, 14; |
| 1 0 -21 -4 164 52 -602 -216 1094 336 -960 -156 365 -4 -33 |
| 3.0000 2.4892 1.8574 1.4441 0.8577 0.6180 0.4760 -0.3154 -1.0000 -1.3249 -1.6180 -1.8083 -1.9843 -2.6915 |
| 2 2 4 8 3 10 20 22 26 28 20 6 4 3 NONPLANAR 2 |

NR. 189

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 11, 9, 13, 10, 12, 10, 13, 11, 14, 12, 14, 13, 14; |
| 1 0 -21 -2 160 24 -553 -90 899 138 -637 -88 163 18 -9 |
| 3.0000 2.4888 1.7155 1.4235 1.0000 0.5977 0.2117 -0.3697 -0.5808 -1.0000 -1.4917 -1.8713 -2.3298 -2.7938 |
| 1 4 3 7 7 9 17 25 32 22 14 6 5 3 PLANAR 1 |

NR. 190

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 11, 9, 13, 10, 12, 10, 14, 11, 13, 12, 14, 13, 14; |
| 1 0 -21 -6 166 84 -615 -408 1084 834 -796 -674 142 154 15 |
| 3.0000 2.4866 1.9228 1.5892 1.1162 0.6180 -0.1154 -0.5078 -0.8156 -1.3923 -1.6180 -1.6886 -2.1183 -2.4769 |
| 3 1 3 6 9 10 15 21 27 26 14 3 4 3 PLANAR 1 |

NR. 191

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 11, 9, 13, 10, 12, 10, 14, 11, 14, 12, 13, 13, 14; |
| 1 0 -21 -2 162 20 -579 -48 1012 -2 -812 86 234 -42 -9 |
| 3.0000 2.4866 1.6031 1.4320 1.0000 0.6180 0.3986 -0.1300 -0.7290 -1.2290 -1.6180 -1.7845 -2.3592 -2.6886 |
| 1 3 5 7 6 8 20 25 27 27 18 5 4 3 NONPLANAR 1 |

NR. 192

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 11, 9, 13, 10, 13, 10, 14, 11, 12, 12, 14, 13, 14; |
| 1 0 -21 -6 166 82 -613 -382 1076 722 -821 -520 200 88 -12 |
| 3.0000 2.4857 2.0336 1.4142 1.1386 0.5000 0.1164 -0.4668 -0.8677 -1.4142 -1.5503 -1.8532 -2.1506 -2.3858 |
| 3 1 4 5 6 10 15 23 30 27 14 3 4 3 PLANAR 1 |

NR. 193

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 9, 6, 10, 7, 8, 7, 11, 8, 12, 9, 11, 9, 12, 10, 13, 10, 14, 11, 13, 12, 14, 13, 14; |
| 1 0 -21 -4 164 50 -596 -198 1044 280 -831 -100 231 -36 0 |
| 3.0000 2.4845 1.9272 1.2722 1.1268 0.4403 0.1971 0.0000 -1.0000 -1.1215 -1.7475 -1.8741 -2.1286 -2.5764 |
| 2 2 5 5 5 11 18 22 28 29 20 6 4 3 NONPLANAR 2 |

NR. 194

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 9, 6, 10, 7, 9, 7, 11, 8, 9, 8, 12, 10, 11, 10, 13, 11, 14, 12, 13, 12, 14, 13, 14; |
| 1 0 -21 -4 164 52 -594 -236 1022 476 -740 -388 137 60 -9 |
| 3.0000 2.4842 1.6180 1.6180 1.3028 0.4142 0.1290 -0.6180 -0.6180 -1.0000 -1.4296 -2.1836 -2.3028 -2.4142 |
| 2 2 4 4 12 12 10 21 28 28 20 6 4 3 NONPLANAR 2 |

NR. 195

| |
|--|
| 1, 2, 1, 3, 1, 4, 2, 3, 2, 5, 3, 6, 4, 5, 4, 7, 5, 8, 6, 7, 6, 9, 7, 10, 8, 11, 8, 12, 9, 13, 9, 14, 10, 11, 10, 13, 11, 12, 12, 14, 13, 14; |
| 1 0 -21 -6 166 82 -615 -378 1098 696 -911 -490 323 104 -33 |
| 3.0000 2.4839 2.0595 1.4324 0.9134 0.6823 0.2294 -0.5342 -1.0000 -1.3108 -1.6743 -1.8439 -1.9624 -2.4753 |
| 3 1 4 6 4 8 19 25 28 26 14 3 4 3 PLANAR 1 |

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 196
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 7 6 9 7 10 8 11 8 12 9 11 9 13 10 13 10 14 11 14 12 13 12 14
1 0 -21 -2 162 18 -573 -30 960 -46 -697 108 156 -36 0
3.0000 2.4834 1.7256 1.3150 1.0000 0.5834 0.2546 0.0000 -0.6344 -1.1475 -1.5350 -2.1079 -2.3833 -2.5538
1 3 6 4 8 9 17 29 25 27 20 5 4 3 NONPLANAR 1

NR. 197
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 7 6 9 7 10 8 11 8 12 9 13 9 14 10 11 10 13 11 14 12 13 12 14
1 0 -21 -2 162 18 -575 -22 970 -104 -695 202 131 -52 3
3.0000 2.4822 1.7376 1.3859 0.7317 0.6597 0.3379 0.0717 -0.5612 -1.2762 -1.7735 -1.8654 -2.2583 -2.6721
1 3 6 5 4 13 20 21 29 29 18 5 4 3 NONPLANAR 1

NR. 198
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 9 7 11 8 9 8 12 10 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -4 164 52 -596 -232 1044 448 -816 -368 208 96 0
3.0000 2.4812 1.8136 1.4142 1.1701 0.6889 0.0000 -0.4707 -0.6889 -1.1701 -1.4142 -2.0000 -2.3429 -2.4812
2 2 4 5 10 10 14 23 26 27 20 6 4 3 NONPLANAR 4

NR. 199
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 7 6 9 7 10 8 11 8 12 9 13 9 14 10 13 10 14 11 12 11 13 12 14
1 0 -21 -4 164 48 -594 -172 1038 164 -864 60 281 -88 3
3.0000 2.4797 2.0199 1.2362 0.7344 0.6180 0.4142 0.0390 -1.0000 -1.2796 -1.6180 -1.8695 -2.3600 -2.4142
2 2 6 4 3 10 20 26 28 28 20 6 4 3 NONPLANAR 2

NR. 200
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -2 162 18 -573 -26 948 -70 -621 128 52 -12 0
3.0000 2.4796 1.7200 1.2568 1.1935 0.2950 0.2586 0.0000 -0.3135 -1.2950 -1.6640 -2.0887 -2.1935 -2.6489
1 3 6 4 7 12 16 24 30 26 20 12 4 3 NONPLANAR 4

NR. 201
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 12 9 11 9 13 10 11 10 14 12 13 12 14 13 14
1 0 -21 -4 162 54 -570 -234 925 354 -624 -98 167 -24 0
3.0000 2.4766 1.9378 1.5962 0.6180 0.5154 0.1826 0.0000 -0.8908 -1.3504 -1.5157 -1.6190 -2.2631 -2.6886
2 3 3 5 5 12 18 22 30 30 20 6 4 3 NONPLANAR 2

NR. 202
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 12 9 11 9 13 10 12 10 13 11 14 12 14 13 14
1 0 -21 -2 158 26 -523 -110 770 164 -467 -86 111 12 -9
3.0000 2.4722 1.9524 1.3180 0.8002 0.4572 0.3342 -0.4787 -0.5896 -0.7638 -1.5063 -1.6906 -2.5563 -2.7489
1 5 2 5 8 6 21 27 34 24 14 6 4 3 PLANAR 2

NR. 203
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 12 9 11 9 13 10 12 10 14 11 13 12 14 13 14
1 0 -21 -6 164 86 -585 -416 925 774 -504 -418 101 60 -9
3.0000 2.4707 1.9027 1.8824 0.7211 0.4381 0.1386 -0.5476 -0.7497 -1.3744 -1.4270 -1.7833 -2.0886 -2.5829
3 2 2 4 7 12 18 22 27 26 14 3 4 3 PLANAR 2

NR. 204
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 12 9 11 9 13 10 12 10 14 11 14 12 13 13 14
1 0 -21 -2 160 22 -549 -64 865 26 -584 74 133 -40 3
3.0000 2.4707 1.8824 1.3383 0.7211 0.5718 0.1916 0.1386 -0.7497 -1.1050 -1.3744 -2.0986 -2.2334 -2.7634
1 4 4 5 5 12 18 24 35 28 16 5 4 3 NONPLANAR 2

NR. 205
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 12 9 10 9 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -6 164 84 -585 -390 939 686 -589 -400 112 54 -9
3.0000 2.4701 2.1517 1.4843 0.8995 0.3962 0.1494 -0.5307 -0.6515 -1.3970 -1.5571 -1.8779 -1.9716 -2.5653
3 2 3 4 5 8 16 28 34 28 14 3 4 3 PLANAR 1

NR. 206
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 11 9 12 10 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -2 160 22 -547 -68 847 44 -516 44 88 -12 0
3.0000 2.4695 1.8229 1.4749 0.6399 0.6180 0.1424 0.0000 -0.5085 -1.0905 -1.6180 -1.8045 -2.4546 -2.6915
1 4 4 4 8 10 18 24 32 28 20 12 4 3 NONPLANAR 4

NR. 207
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 9 7 11 8 9 8 12 10 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -2 160 26 -555 -112 907 208 -624 -144 108 0 0
3.0000 2.4673 1.6491 1.4142 1.3028 0.3557 0.0000 0.0000 -0.7928 -1.0000 -1.4142 -1.8449 -2.3028 -2.8345
1 4 2 8 7 13 16 18 34 26 20 12 4 3 NONPLANAR 4

NR. 208
1 2 3 1 3 1 4 2 5 2 6 3 5 3 6 4 7 4 8 5 7 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 13 11 14 12 14 13 14
1 0 -21 0 156 -6 -496 46 660 -76 -335 52 55 -12 0
3.0000 2.4664 1.7632 1.3557 0.7042 0.4773 0.2464 0.0000 -0.6208 -0.7376 -1.1822 -2.0953 -2.6153 -2.7620
0 6 3 4 10 6 22 30 24 36 8 12 4 3 NONPLANAR 4

NR. 209
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 9 7 10 8 11 8 12 9 11 10 13 11 14 12 13 12 14 13 14
1 0 -21 -4 162 56 -570 -268 921 536 -585 -424 56 80 12
3.0000 2.4661 1.9319 1.4142 1.1859 0.5176 -0.2240 -0.5090 -0.5176 -1.0000 -1.4142 -1.9319 -2.2317 -2.6874
2 3 2 5 10 12 12 22 30 29 20 6 5 3 NONPLANAR 2

NR. 210
1 2 3 1 3 1 4 2 3 2 5 3 6 4 5 4 7 5 8 6 9 6 10 7 8 7 11 8 12 9 11 9 13 10 13 10 14 11 14 12 13 12 14
1 0 -21 -2 160 20 -545 -42 835 -54 -521 136 80 -34 3
3.0000 2.4652 1.9669 1.2059 0.7352 0.4142 0.3397 0.1383 -0.5318 -1.1709 -1.5186 -1.9637 -2.4142 -2.6662
1 4 5 3 5 11 20 28 29 30 20 5 4 3 NONPLANAR 1

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 211
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 8; 8, 10; 9, 12; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 -4 162 54 -566 -242 885 418 -516 -226 99 36 0
3.0000 2.4641 1.9122 1.6525 0.6861 0.6180 0.0000 -0.3128 -0.7135 -0.8814 -1.6180 -1.9625 -2.1987 -2.6459
2 3 3 3 10 11 15 26 28 24 18 6 4 3 NONPLANAR 4

NR. 212
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 7; 6, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 13; 10, 14; 11, 14; 12, 13; 12, 14;
1 0 -21 0 158 -10 -522 94 749 -234 -368 150 31 -12 0
3.0000 2.4641 1.6525 1.3772 0.6861 0.6180 0.2739 0.0000 -0.3128 -0.8814 -1.6180 -1.9625 -2.6459 -2.6511
0 5 5 4 8 9 21 26 32 28 18 10 4 3 NONPLANAR 4

NR. 213
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 9; 8, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 162 52 -566 -212 893 288 -569 -84 112 -12 0
3.0000 2.4624 2.0682 1.3898 0.8182 0.3643 0.1299 0.0000 -0.6921 -1.1562 -1.6912 -1.8780 -2.1710 -2.6442
2 3 4 3 6 10 17 28 32 26 18 6 4 3 NONPLANAR 2

NR. 214
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 162 50 -566 -186 913 182 -684 6 183 -36 0
3.0000 2.4605 2.1642 1.0000 0.8794 0.6180 0.2391 0.0000 -0.7729 -1.3473 -1.6180 -1.6996 -2.3914 -2.5321
2 3 5 3 3 6 20 32 34 30 20 6 4 3 NONPLANAR 4

NR. 215
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 7; 6, 9; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 0 158 -12 -518 120 701 -312 -241 164 -24 0 0
3.0000 2.4594 1.7801 1.2512 0.6775 0.4142 0.2578 0.0000 0.0000 -0.8221 -1.7937 -2.0668 -2.4142 -2.7435
0 5 6 2 6 15 17 26 36 24 22 10 4 3 NONPLANAR 2

NR. 216
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 9, 13; 9, 14; 10, 13; 10, 14; 11, 12; 11, 13; 12, 14;
1 0 -21 -2 160 18 -543 -12 811 -176 -448 236 -24 0 0
3.0000 2.4555 2.0531 1.0000 0.6818 0.6180 0.1392 0.0000 0.0000 -1.3692 -1.6180 -2.0000 -2.2635 -2.6969
1 4 6 2 2 14 18 28 36 28 20 12 4 3 NONPLANAR 8

NR. 217
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 10; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -6 164 84 -581 -398 903 734 -489 -468 48 94 15
3.0000 2.4542 2.1423 1.5674 0.7672 0.6446 -0.2270 -0.5076 -0.6244 -1.0000 -1.6456 -1.8998 -2.3237 -2.3475
3 2 3 2 8 11 15 25 31 27 14 3 4 3 PLANAR 2

NR. 218
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 11; 9, 12; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -4 166 50 -624 -214 1171 398 -1030 -316 342 74 -33
3.0000 2.4529 1.6897 1.4498 1.3082 0.6245 0.2607 -0.5912 -0.6607 -1.2331 -1.7145 -1.8781 -2.3354 -2.3727
2 1 5 6 9 11 14 26 30 23 16 6 4 3 PLANAR 2

NR. 219
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 7; 6, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 11; 10, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -4 168 48 -656 -192 1344 320 -1392 -192 576 0 0
3.0000 2.4495 1.4142 1.4142 1.4142 1.0000 0.0000 0.0000 -1.4142 -1.4142 -1.4142 -2.0000 -2.0000 -2.4495
2 0 6 9 6 9 18 27 24 24 24 12 4 3 NONPLANAR 12

NR. 220
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 10; 8, 11; 8, 12; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 0 156 0 -512 0 768 0 -432 0 0 0 0
3.0000 2.4495 1.4142 1.4142 1.4142 0.0000 0.0000 0.0000 0.0000 -1.4142 -1.4142 -1.4142 -2.4495 -3.0000
0 6 0 12 0 24 0 48 0 60 0 24 4 3 NONPLANAR 48

NR. 221
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -6 164 86 -583 -424 911 844 -452 -604 -83 56 12
3.0000 2.4477 2.1149 1.5006 1.1701 0.3243 -0.2541 -0.4841 -0.6889 -1.0000 -1.5470 -1.8608 -2.2415 -2.4812
3 2 2 3 10 12 13 22 30 27 14 3 4 3 PLANAR 1

NR. 222
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 10; 8, 11; 8, 12; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 -4 162 52 -564 -220 887 344 -599 -192 151 36 -9
3.0000 2.4464 2.1073 1.3017 0.8019 0.6421 0.1682 -0.5011 -0.5550 -1.1717 -1.2701 -2.2027 -2.2470 -2.5200
2 3 4 2 8 10 16 28 30 28 20 6 4 3 NONPLANAR 2

NR. 223
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 10; 8, 11; 8, 12; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -2 158 28 -525 -132 778 240 -470 -158 79 24 0
3.0000 2.4424 1.9645 1.3002 1.0000 0.4917 0.0000 -0.2792 -0.6189 -1.0000 -1.1885 -1.8291 -2.4558 -2.8273
1 5 1 6 8 10 20 20 36 28 20 12 4 3 NONPLANAR 4

NR. 224
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 12; 10, 13; 11, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -4 166 52 -626 -240 1185 508 -1049 -496 312 176 12
3.0000 2.4349 1.6326 1.4142 1.4142 0.8534 -0.0811 -0.4849 -0.7010 -1.4142 -1.4142 -1.8792 -2.3038 -2.4709
2 1 4 7 11 10 13 25 31 28 18 5 4 3 NONPLANAR 1

NR. 225
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 7; 6, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -2 162 24 -585 -84 1038 100 -834 -6 223 -48 0
3.0000 2.4329 1.5321 1.5321 1.2555 0.3473 0.3473 0.0000 -1.0000 -1.0000 -1.8372 -1.8794 -1.8794 -2.8512
1 3 3 10 3 15 18 24 30 30 12 12 4 3 NONPLANAR 6

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 226
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 9; 7, 10; 8, 11; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 162 24 -585 -84 1038 100 -834 -6 223 -48 0
3.0000 2.4329 1.5321 1.5321 1.2555 0.3473 0.3473 0.0000 -1.0000 -1.0000 -1.8372 -1.8794 -1.8794 -2.8512
1 3 3 10 3 15 18 24 30 30 12 12 4 3 NONPLANAR 12

NR. 227
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 13; 10, 14; 11, 12; 12, 14; 13, 14;
1 0 -21 164 84 -583 -394 925 708 -565 -448 87 72 0
3.0000 2.4325 2.2121 1.4389 0.9336 0.4851 0.0000 -0.5170 -0.6994 -1.2186 -1.5524 -1.8209 -2.2275 -2.4664
3 2 3 3 6 10 17 26 31 27 14 3 4 3 PLANAR 1

NR. 228
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 8; 6, 9; 6, 10; 7, 11; 8, 12; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 166 50 -626 -206 1189 334 -1100 -198 419 28 -48
3.0000 2.4307 1.8742 1.2470 1.2286 0.6180 0.4397 -0.4450 -0.7919 -1.5368 -1.6180 -1.8019 -2.0965 -2.5480
2 1 5 7 6 10 18 28 26 24 12 4 3 NONPLANAR 4

NR. 229
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 11; 10, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 166 50 -622 -214 1149 386 -968 -262 283 28 -12
3.0000 2.4285 1.7062 1.5962 1.1962 0.5519 0.1826 -0.2606 -0.8926 -1.2641 -1.5157 -2.1232 -2.2631 -2.3421
2 1 5 5 9 14 16 21 28 31 20 5 4 3 NONPLANAR 1

NR. 230
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 7; 6, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 168 82 -643 -392 1223 796 -1100 -664 396 160 -48
3.0000 2.4265 2.0000 1.4142 1.2296 0.6180 0.2337 -0.6457 -1.0000 -1.4142 -1.6180 -1.8748 -2.0000 -2.3693
3 0 4 7 6 10 19 25 26 27 20 6 4 3 NONPLANAR 2

NR. 231
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 7; 6, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 164 18 -603 -32 1095 -48 -896 136 220 -48 0
3.0000 2.4265 1.5616 1.4142 1.2296 0.6180 0.2337 0.0000 -0.6457 -1.4142 -1.6180 -1.8748 -2.3693 -2.5616
1 2 6 6 8 10 19 29 28 25 24 10 4 3 NONPLANAR 2

NR. 232
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 11; 10, 12; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 164 86 -583 -420 911 800 -480 -492 44 80 12
3.0000 2.4264 2.1149 1.6751 0.8087 0.5392 -0.2541 -0.2810 -1.0000 -1.0000 -1.4467 -1.8608 -2.2143 -2.5074
3 2 2 3 8 14 19 20 24 25 14 3 4 3 PLANAR 2

NR. 233
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 10; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 160 58 -544 -270 804 456 -431 -240 55 24 0
3.0000 2.4253 2.1410 1.4394 0.8504 0.3871 0.0000 -0.2884 -0.6922 -1.0000 -1.4582 -1.8783 -2.1172 -2.8089
2 4 1 5 5 13 17 26 32 26 18 6 4 3 NONPLANAR 2

NR. 234
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 12; 10, 13; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 166 50 -624 -210 1171 358 -1050 -228 382 26 -33
3.0000 2.4247 1.8445 1.4236 1.1254 0.6286 0.3376 -0.3566 -1.0000 -1.1521 -1.7389 -1.8415 -2.2368 -2.4585
2 1 5 6 7 12 20 23 26 30 20 5 4 3 NONPLANAR 1

NR. 235
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 13; 10, 13; 11, 12; 11, 14; 12, 14; 13, 14;
1 0 -21 164 54 -596 -254 1032 504 -751 -392 135 72 0
3.0000 2.4242 1.8559 1.5231 1.2035 0.5093 0.0000 -0.5149 -0.5446 -1.2598 -1.5669 -1.6970 -2.4413 -2.4915
2 2 3 5 11 11 16 27 28 22 16 6 4 3 PLANAR 2

NR. 236
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 162 48 -560 -169 863 148 -603 -44 187 4 -21
3.0000 2.4213 2.2470 0.8019 0.8019 0.6964 0.5550 -0.5550 -0.5550 -0.8019 -1.7633 -2.2470 -2.2470 -2.3544
2 3 6 0 4 10 16 32 36 30 20 6 4 3 NONPLANAR 8

NR. 237
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 12; 9, 13; 9, 14; 10, 13; 10, 14; 11, 13; 12, 14;
1 0 -21 158 24 -521 -76 742 28 -438 38 79 -12 0
3.0000 2.4189 2.1368 1.0000 0.8019 0.5816 0.1615 0.0000 -0.5550 -1.0000 -1.4259 -2.0411 -2.2470 -2.8319
1 5 3 4 2 14 20 24 40 28 20 12 4 3 NONPLANAR 8

NR. 238
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 11; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 164 84 -581 -394 903 690 -509 -352 116 42 -9
3.0000 2.4142 2.1987 1.5962 0.7135 0.4142 0.1826 -0.4142 -1.0000 -1.0000 -1.5157 -1.9122 -2.2631 -2.4142
3 2 3 2 6 14 19 22 27 26 14 3 4 3 PLANAR 1

NR. 239
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 9; 8, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 154 -0 -478 -0 609 -0 -301 0 36 0 0
3.0000 2.4142 2.0000 1.0000 1.0000 0.4142 0.0000 0.0000 -0.4142 -1.0000 -1.0000 -2.0000 -2.4142 -3.0000
0 7 0 8 0 24 0 56 0 64 0 24 4 3 NONPLANAR 32

NR. 240
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 8; 6, 9; 6, 10; 7, 11; 8, 12; 9, 11; 9, 13; 10, 11; 10, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 164 52 -594 -224 1018 356 -756 -148 225 16 -21
3.0000 2.4142 1.9354 1.6180 0.6180 0.6180 0.4142 -0.4142 -0.6180 -1.4626 -1.6180 -1.6180 -2.4142 -2.4728
2 2 4 4 8 12 16 28 32 28 24 12 4 3 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 241
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 13 11 14 12 14 13 14
 1 0 -21 0 156 0 -510 0 750 0 -444 0 109 0 -9
 3.0000 2.4142 1.6180 1.6180 0.6180 0.6180 0.4142 -0.4142 -0.6180 -0.6180 -1.6180 -1.6180 -2.4142 -3.0000
 0 6 0 11 0 24 0 60 0 48 0 12 5 3 PLANAR 12

NR. 242
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 13 11 14 12 14 13 14
 1 0 -21 -2 160 26 -555 -104 907 128 -652 -4 164 -24 0
 3.0000 2.4121 1.9098 1.4142 0.7883 0.6180 0.1631 0.0000 -0.7637 -1.3339 -1.4142 -1.6180 -2.3321 -2.8435
 1 4 2 8 4 12 22 26 32 32 12 12 4 3 NONPLANAR 4

NR. 243
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 13 10 12 10 14 11 13 12 14 13 14
 1 0 -21 -4 164 52 -592 -228 996 392 -692 -220 180 40 -12
 3.0000 2.4120 1.8946 1.6708 0.7413 0.6432 0.1925 -0.4936 -0.5741 -1.0843 -1.6650 -1.9568 -2.2809 -2.4997
 2 2 4 3 9 15 18 25 27 22 16 6 4 3 PLANAR 1

NR. 244
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 13 10 12 10 13 11 14 12 14 13 14
 1 0 -21 -4 160 58 -540 -278 772 492 -355 -244 31 24 0
 3.0000 2.4100 2.1189 1.5638 0.7722 0.3524 0.0000 -0.3910 -0.6214 -1.0000 -1.2551 -1.9538 -2.2491 -2.7470
 2 4 1 3 9 13 17 26 28 24 18 6 4 3 NONPLANAR 2

NR. 245
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -2 160 26 -549 -120 857 246 -548 -178 113 24 -9
 3.0000 2.4098 1.7848 1.5810 1.0000 0.3538 0.2726 -0.5126 -0.6966 -0.7586 -1.2627 -2.0778 -2.3233 -2.7703
 1 4 2 5 11 12 17 28 31 23 16 5 4 3 PLANAR 2

NR. 246
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -2 164 18 -601 -36 1081 -22 -896 102 269 -48 -9
 3.0000 2.4098 1.5810 1.5464 1.0000 0.6993 0.3538 -0.1173 -0.7586 -1.2627 -1.4392 -2.2038 -2.3233 -2.4855
 1 2 6 5 9 11 19 32 25 25 22 7 4 3 NONPLANAR 2

NR. 247
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 13 10 14 11 13 11 14 12 13 12 14
 1 0 -21 -2 160 28 -555 -138 909 292 -649 -256 159 72 0
 3.0000 2.4089 1.7866 1.5075 1.0000 0.7249 0.0000 -0.5663 -0.6676 -0.7969 -1.4484 -1.7276 -2.3956 -2.8257
 1 4 1 8 9 11 19 23 38 24 12 8 4 3 NONPLANAR 2

NR. 248
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 13 12 14 13 14
 1 0 -21 -6 166 84 -611 -404 1040 766 -704 -458 206 82 -21
 3.0000 2.4075 1.9563 1.8459 0.6674 0.6180 0.2091 -0.5622 -0.8208 -1.3383 -1.6180 -1.8271 -2.0868 -2.4509
 3 1 3 4 7 14 18 24 28 28 20 6 4 3 NONPLANAR 4

NR. 249
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 14 12 13 13 14
 1 0 -21 -2 162 20 -571 -56 936 42 -660 -2 198 -2 -21
 3.0000 2.4075 1.8459 1.4413 0.6674 0.6180 0.5669 -0.4851 -0.5622 -0.8208 -1.6180 -2.0868 -2.4509 -2.5231
 1 3 5 3 11 10 14 36 32 24 24 10 4 3 NONPLANAR 4

NR. 250
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 10 9 13 10 14 11 12 11 14 12 13 13 14
 1 0 -21 -4 162 58 -576 -274 955 498 -662 -312 154 54 -9
 3.0000 2.4071 2.0264 1.5229 0.9137 0.5283 0.1331 -0.5389 -0.5847 -1.3731 -1.4689 -1.8573 -1.8866 -2.8221
 2 3 1 8 4 13 19 27 34 22 14 6 4 3 PLANAR 2

NR. 251
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 11 9 13 10 12 10 14 11 14 12 13 13 14
 1 0 -21 0 158 -6 -528 54 799 -150 -482 156 74 -34 3
 3.0000 2.4071 1.6460 1.5229 0.7015 0.5283 0.3067 0.1331 -0.5389 -1.1101 -1.3731 -1.8573 -2.5441 -2.8221
 0 5 3 7 6 11 27 21 38 26 14 10 4 3 NONPLANAR 2

NR. 252
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 12 9 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 -2 162 24 -581 -92 1066 148 -762 -106 175 24 0
 3.0000 2.4067 1.6814 1.4560 1.2040 0.6256 0.0000 -0.1370 -0.6222 -1.1269 -1.6751 -1.8572 -2.1525 -2.8028
 1 3 3 8 7 14 17 24 34 26 22 10 4 3 NONPLANAR 2

NR. 253
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 10 9 11 10 13 11 14 12 13 12 14 13 14
 1 0 -21 -6 166 84 -615 -400 1084 758 -844 -522 250 90 -9
 3.0000 2.4050 2.1330 1.5096 0.9451 0.6180 0.0842 -0.3680 -1.1505 -1.3654 -1.6180 -1.6754 -1.9833 -2.5344
 3 1 3 6 5 8 20 30 30 28 20 6 4 3 NONPLANAR 2

NR. 254
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 9 11 9 13 10 13 10 14 11 14 12 13 12 14
 1 0 -21 -2 162 20 -575 -44 968 -54 -712 174 154 -58 3
 3.0000 2.4037 1.9224 1.3046 0.7387 0.6180 0.3724 0.0627 -0.6277 -1.3646 -1.6180 -1.7812 -2.3543 -2.6767
 1 3 5 5 12 22 28 32 28 24 10 4 3 NONPLANAR 2

NR. 255
 1 2 3 1 3 1 4 2 3 2 5 3 6 3 7 4 6 4 7 5 8 6 9 7 10 8 11 8 12 8 13 9 12 10 12 10 14 11 13 11 14 13 14
 1 0 -21 -4 164 56 -600 -272 1056 556 -784 -432 128 48 0
 3.0000 2.4034 1.8527 1.4142 1.4142 0.4083 0.0000 -0.2631 -0.8515 -1.4142 -1.4142 -1.6563 -2.2084 -2.6851
 2 2 2 7 9 14 18 20 27 31 20 5 4 3 NONPLANAR 1

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 256
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -2 160 24 -545 -98 827 170 -509 -100 124 18 -9
3.0000 2.4027 1.9122 1.4933 0.7256 0.5969 0.2486 -0.4949 -0.6304 -0.7135 -1.3295 -2.1987 -2.3051 -2.7072
1 4 3 3 11 11 18 34 27 22 18 5 4 3 PLANAR 1

NR. 257
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 8; 6, 9; 6, 10; 7, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 164 52 -602 -208 1094 268 -1004 -68 401 -40 -33
3.0000 2.4027 2.1149 1.0000 1.0000 0.6180 0.6180 -0.2541 -1.0000 -1.6180 -1.6180 -1.6840 -1.8608 -2.7187
2 2 4 8 0 8 24 32 32 28 24 12 4 3 NONPLANAR 16

NR. 258
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 -2 164 16 -597 -10 1039 -126 -773 216 175 -70 3
3.0000 2.4025 1.7636 1.4529 0.7737 0.6315 0.4142 0.0493 -0.6593 -1.1381 -1.7809 -2.2118 -2.2833 -2.4142
1 2 7 3 7 16 19 27 30 26 20 7 4 3 NONPLANAR 1

NR. 259
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 13; 10, 14; 11, 14; 12, 13; 12, 14;
1 0 -21 -2 160 26 -553 -108 889 158 -616 -58 157 0 -9
3.0000 2.4007 1.9153 1.4398 0.8308 0.5228 0.3159 -0.2619 -0.6705 -1.1106 -1.4360 -1.7939 -2.3251 -2.8274
1 4 2 7 5 14 23 22 35 26 14 8 4 3 NONPLANAR 1

NR. 260
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 8; 8, 12; 9, 10; 9, 13; 10, 13; 11, 12; 11, 14; 12, 14; 13, 14;
1 0 -21 -8 168 116 -626 -592 1046 1240 -576 -924 1 200 39
3.0000 2.4003 2.1149 1.8268 0.9020 0.6180 -0.2541 -0.5374 -1.0000 -1.4076 -1.6180 -1.8608 -1.9129 -2.2712
4 0 2 5 6 11 20 25 28 26 14 3 4 3 PLANAR 2

NR. 261
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 8; 8, 12; 9, 10; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 -4 164 52 -594 -224 1018 364 -768 -188 233 28 -21
3.0000 2.4002 2.0078 1.5095 0.7679 0.6180 0.3240 -0.4346 -0.6789 -1.2153 -1.6180 -1.8770 -2.2459 -2.5539
2 2 4 4 8 11 19 29 30 27 18 5 4 3 NONPLANAR 1

NR. 262
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 8; 6, 9; 7, 10; 7, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 0 160 -12 -546 112 826 -280 -456 196 73 -40 3
3.0000 2.4001 1.6180 1.4702 0.6755 0.6180 0.4142 0.0945 -0.6180 -0.7469 -1.6180 -2.2442 -2.4142 -2.6492
0 4 6 3 10 11 18 37 28 25 26 7 4 3 NONPLANAR 2

NR. 263
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 8; 8, 12; 9, 10; 9, 13; 10, 11; 11, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -8 168 116 -628 -592 1068 1256 -624 -992 -80 96 0
3.0000 2.3989 2.2143 1.4142 1.4142 0.2664 0.0000 -0.5392 -1.3545 -1.4142 -1.4142 -1.6751 -2.0000 -2.3108
4 0 2 6 6 7 18 29 32 27 14 3 4 3 PLANAR 4

NR. 264
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 8; 8, 12; 9, 10; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 -4 164 52 -596 -220 1040 328 -832 -104 256 -48 0
3.0000 2.3989 2.0447 1.4142 0.9171 0.4358 0.2664 0.0000 -1.1049 -1.3545 -1.4142 -1.7257 -2.3108 -2.5669
2 2 4 5 6 9 24 29 26 29 20 5 4 3 NONPLANAR 2

NR. 265
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 8; 6, 9; 7, 10; 7, 11; 8, 12; 9, 13; 9, 14; 10, 12; 10, 13; 11, 13; 11, 14; 12, 14;
1 0 -21 0 160 -12 -548 120 836 -344 -432 304 -48 0 0
3.0000 2.3989 1.6751 1.4142 0.7321 0.5392 0.2664 0.0000 0.0000 -1.3545 -1.4142 -2.2143 -2.3108 -2.7321
0 4 6 4 6 15 22 25 36 29 18 11 4 3 NONPLANAR 4

NR. 266
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 13; 10, 14; 11, 12; 11, 14; 13, 14;
1 0 -21 -4 164 56 -600 -272 1056 564 -800 -480 172 128 12
3.0000 2.3979 1.8596 1.5878 1.1088 0.6899 -0.1168 -0.5169 -0.6425 -1.1611 -1.6271 -1.7618 -2.1194 -2.6983
2 2 2 7 9 14 17 22 29 28 18 5 4 3 NONPLANAR 1

NR. 267
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 10; 9, 12; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 -6 164 82 -581 -368 917 602 -596 -338 149 60 -9
3.0000 2.3952 2.3056 1.3664 0.7100 0.6469 0.1244 -0.5214 -0.6824 -1.1480 -1.7462 -1.8216 -2.2600 -2.3689
3 2 4 2 4 10 17 28 34 28 14 3 4 3 PLANAR 2

NR. 268
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 10; 9, 11; 10, 14; 12, 13; 12, 14; 13, 14;
1 0 -21 -6 166 84 -611 -408 1044 810 -704 -602 86 106 15
3.0000 2.3950 2.1149 1.5349 1.0953 0.5266 -0.2541 -0.2624 -0.8368 -1.3746 -1.4773 -1.8608 -2.2451 -2.3557
3 1 3 4 8 12 18 23 28 32 22 6 4 3 NONPLANAR 2

NR. 269
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 11; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 -6 166 86 -613 -434 1052 922 -673 -752 -12 104 12
3.0000 2.3945 2.0615 1.4142 1.4142 0.3963 -0.1262 -0.6131 -0.6938 -1.4142 -1.4142 -1.7640 -2.1871 -2.4681
3 1 2 5 10 13 16 20 27 32 22 6 4 3 NONPLANAR 1

NR. 270
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 12; 9, 14; 10, 12; 10, 14; 11, 13; 13, 14;
1 0 -21 -4 160 56 -540 -248 780 364 -412 -120 72 0 0
3.0000 2.3930 2.2233 1.4142 0.6678 0.3780 0.0000 0.0000 -0.6906 -1.1409 -1.4142 -1.8375 -2.2503 -2.7427
2 4 2 3 5 12 19 28 32 26 18 6 4 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 271
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 11; 10, 13; 11, 14; 12, 14; 13, 14;
 1 0 -21 -2 162 24 -577 -104 982 224 -734 -234 183 72 0
 3.0000 2.3929 1.6881 1.4605 1.2215 0.7009 0.0000 -0.4889 -0.6691 -0.7609 -1.5242 -1.9593 -2.3638 -2.6996
 1 3 3 6 12 11 16 28 32 27 20 7 4 3 NONPLANAR 1

NR. 272
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 11; 9, 12; 10, 13; 10, 14; 12, 14; 13, 14;
 1 0 -21 -4 164 54 -594 -254 1010 496 -703 -350 128 42 -9
 3.0000 2.3922 1.8951 1.6146 1.1096 0.3500 0.1787 -0.4425 -0.6991 -1.1706 -1.4194 -1.9568 -2.3139 -2.5379
 2 2 3 4 11 14 18 22 26 30 20 5 4 3 NONPLANAR 1

NR. 273
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 11; 10, 14; 11, 13; 12, 14; 13, 14;
 1 0 -21 -2 162 24 -579 -96 992 166 -740 -114 170 6 -9
 3.0000 2.3918 1.7140 1.4381 1.2652 0.3848 0.2946 -0.2660 -0.6737 -1.0866 -1.5087 -1.9608 -2.2246 -2.7681
 1 3 3 7 8 15 19 21 33 30 20 7 4 3 NONPLANAR 1

NR. 274
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 11; 9, 12; 9, 13; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
 1 0 -21 -2 160 26 -551 -108 859 164 -520 -56 96 0 0
 3.0000 2.3914 1.8422 1.6180 0.7729 0.5069 0.0000 0.0000 -0.6180 -1.0000 -1.5069 -2.0000 -2.1642 -2.8422
 1 4 2 6 6 18 18 26 28 28 12 12 4 3 NONPLANAR 4

NR. 275
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 14;
 1 0 -21 -2 164 20 -605 -54 1107 26 -933 48 272 -30 -9
 3.0000 2.3890 1.6195 1.4466 1.2044 0.6516 0.2833 -0.1395 -0.7239 -1.2739 -1.6412 -1.9280 -2.2221 -2.6660
 1 2 5 7 7 14 21 23 31 31 20 6 4 3 NONPLANAR 1

NR. 276
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 9; 7, 10; 8, 11; 8, 12; 9, 13; 10, 13; 11, 14; 12, 14; 13, 14;
 1 0 -21 -2 156 30 -495 -148 647 216 -276 -48 36 0 0
 3.0000 2.3858 2.1451 1.4142 0.5240 0.3924 0.0000 0.0000 -0.5161 -1.0000 -1.4142 -1.4966 -2.6691 -2.7655
 1 6 0 4 8 8 28 20 36 28 16 12 4 3 NONPLANAR 8

NR. 277
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 14; 10, 11; 10, 14; 11, 12; 12, 13; 13, 14;
 1 0 -21 -4 164 52 -594 -224 1022 356 -788 -160 233 -12 -9
 3.0000 2.3842 2.0562 1.4344 0.9237 0.4142 0.3390 -0.1714 -1.0000 -1.1936 -1.4666 -1.8473 -2.4142 -2.4585
 2 2 4 4 7 12 22 26 27 30 20 5 4 3 NONPLANAR 1

NR. 278
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 14; 10, 11; 10, 12; 11, 14; 12, 13; 13, 14;
 1 0 -21 -4 164 52 -592 -228 1000 392 -724 -236 192 40 -12
 3.0000 2.3838 2.0299 1.4947 0.8880 0.5806 0.1885 -0.4127 -0.6987 -1.1225 -1.4985 -2.1218 -2.2185 -2.4928
 2 2 4 5 9 14 17 26 31 28 18 5 4 3 NONPLANAR 1

NR. 279
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 14; 10, 11; 10, 12; 11, 13; 12, 14; 13, 14;
 1 0 -21 -2 164 18 -599 -36 1055 -20 -812 64 208 -8 -12
 3.0000 2.3838 1.7223 1.4620 1.0000 0.6924 0.2976 -0.2667 -0.5063 -1.1408 -1.7188 -2.1218 -2.2956 -2.5081
 1 2 6 4 9 15 18 27 29 31 22 6 4 3 NONPLANAR 1

NR. 280
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 11; 9, 14; 10, 12; 10, 14; 12, 13; 13, 14;
 1 0 -21 -2 162 22 -575 -74 962 88 -691 -42 163 0 -9
 3.0000 2.3828 1.8758 1.2714 1.1681 0.4601 0.3073 -0.2644 -0.6065 -1.0000 -1.6484 -1.9588 -2.2846 -2.7028
 1 3 4 5 8 14 20 27 29 29 22 7 4 3 NONPLANAR 1

NR. 281
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 11; 9, 14; 10, 12; 10, 13; 12, 14; 13, 14;
 1 0 -21 -2 164 18 -599 -36 1055 -20 -812 68 204 -36 0
 3.0000 2.3827 1.7559 1.3028 1.2156 0.5850 0.1909 0.0000 -0.7578 -1.0000 -1.7710 -2.0921 -2.3028 -2.5092
 1 2 6 4 9 15 18 26 32 30 20 6 4 3 NONPLANAR 2

NR. 282
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 14; 10, 12; 10, 13; 11, 12; 11, 14; 13, 14;
 1 0 -21 -2 162 22 -573 -78 944 114 -653 -72 176 16 -12
 3.0000 2.3810 1.7640 1.6014 0.7934 0.6938 0.2561 -0.3963 -0.6719 -0.7722 -1.6252 -2.0615 -2.2963 -2.6664
 1 3 4 4 10 15 18 26 31 27 20 7 4 3 NONPLANAR 1

NR. 283
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 14; 10, 12; 10, 14; 11, 12; 11, 13; 13, 14;
 1 0 -21 -2 162 22 -575 -74 966 76 -707 2 175 0 -9
 3.0000 2.3806 1.8601 1.4485 0.8253 0.7002 0.2599 -0.2651 -0.5268 -1.2639 -1.4427 -1.9167 -2.3927 -2.6666
 1 3 4 5 8 13 23 25 30 28 20 7 4 3 NONPLANAR 1

NR. 284
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 14; 10, 12; 10, 14; 11, 13; 11, 14; 12, 13;
 1 0 -21 -4 162 56 -568 -260 895 448 -539 -216 119 24 -9
 3.0000 2.3804 2.0627 1.6143 0.7440 0.3762 0.2708 -0.4119 -0.6466 -1.1321 -1.5219 -1.8186 -2.2115 -2.7058
 2 3 2 4 7 15 20 26 29 23 16 6 4 3 PLANAR 1

NR. 285
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
 1 0 -21 0 156 -2 -500 6 688 -8 -355 40 55 -12 0
 3.0000 2.3779 1.8448 1.4903 0.6379 0.3736 0.2975 0.0000 -0.5421 -1.0000 -1.1461 -1.8445 -2.6764 -2.8131
 0 6 1 6 8 11 31 14 46 18 18 10 4 3 NONPLANAR 4

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 286
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 13; 10, 14; 11, 12; 11, 14; 12, 13; 13, 14;
1 0 -21 0 160 -10 -552 102 864 -300 -483 260 7 -12 0
3.0000 2.3779 1.6353 1.4903 0.7212 0.6379 0.2975 0.0000 -0.1991 -1.1461 -1.8290 -1.8445 -2.3283 -2.8131
0 4 5 6 4 18 23 22 38 26 18 14 4 3 NONPLANAR 4

NR. 287
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 10; 8, 12; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 0 156 0 -508 0 728 0 -404 0 72 0 0
3.0000 2.3761 1.8478 1.4142 0.7654 0.5952 0.0000 0.0000 -0.5952 -0.7654 -1.4142 -1.8478 -2.3761 -3.0000
0 6 0 10 0 27 0 58 0 56 0 16 4 3 NONPLANAR 4

NR. 288
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 10; 9, 12; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 -4 162 54 -564 -242 871 406 -514 -232 102 30 -9
3.0000 2.3743 2.1485 1.4498 0.8620 0.3382 0.2607 -0.6042 -0.6607 -0.7077 -1.7145 -1.8218 -2.3354 -2.5893
2 3 3 2 9 11 18 32 23 16 6 4 3 PLANAR 2

NR. 289
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 10; 9, 12; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 -4 164 50 -592 -198 1008 260 -775 -88 219 4 -12
3.0000 2.3731 2.1454 1.2700 0.7986 0.6995 0.2714 -0.2630 -0.6651 -1.3095 -1.6516 -1.8992 -2.2939 -2.4758
2 2 5 3 5 12 22 28 30 31 20 5 4 3 NONPLANAR 1

NR. 290
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 12; 9, 14; 10, 13; 10, 14; 11, 14; 12, 13;
1 0 -21 164 16 -597 -6 1035 -162 -745 264 96 -46 3
3.0000 2.3730 1.8960 1.2470 1.0000 0.4142 0.4142 0.0814 -0.4450 -1.3972 -1.8019 -1.9532 -2.4142 -2.4142
1 2 7 3 5 18 23 22 30 34 22 6 4 3 NONPLANAR 2

NR. 291
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 12; 9, 13; 10, 12; 10, 14; 11, 14; 13, 14;
1 0 -21 -2 162 20 -569 -56 914 32 -598 38 119 -24 0
3.0000 2.3730 1.9179 1.4239 0.8917 0.4142 0.2558 0.0000 -0.6523 -1.0000 -1.5057 -2.2037 -2.4142 -2.5007
1 3 5 2 10 14 20 29 28 28 22 7 4 3 NONPLANAR 1

NR. 292
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 10; 8, 10; 8, 12; 9, 13; 9, 14; 11, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 160 28 -551 -142 869 304 -533 -240 55 24 0
3.0000 2.3704 1.8367 1.5211 1.1749 0.3477 0.0000 -0.3120 -0.6250 -0.8743 -1.4422 -1.7624 -2.4539 -2.7803
1 4 1 6 12 12 19 24 32 26 22 10 4 3 NONPLANAR 2

NR. 293
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 10; 8, 12; 8, 13; 9, 12; 9, 13; 10, 11; 11, 14; 12, 14; 13, 14;
1 0 -21 -4 162 58 -570 -286 901 570 -500 -414 -17 24 0
3.0000 2.3653 2.0632 1.4281 1.2470 0.2055 0.0000 -0.4450 -0.6739 -0.8465 -1.6739 -1.8019 -2.1188 -2.7539
2 3 1 5 10 14 14 26 32 28 24 12 4 3 NONPLANAR 4

NR. 294
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 10; 9, 11; 10, 12; 11, 13; 12, 14; 13, 14;
1 0 -21 166 84 -613 -404 1066 788 -794 -602 183 140 12
3.0000 2.3639 2.1951 1.4503 1.0000 0.6972 -0.1039 -0.3994 -1.0000 -1.1998 -1.6300 -1.8915 -2.0000 -2.4818
3 1 3 5 6 11 20 24 28 32 22 6 4 3 NONPLANAR 2

NR. 295
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 10; 9, 11; 10, 13; 11, 12; 12, 14; 13, 14;
1 0 -21 166 118 -594 -602 861 1186 -176 -626 -145 44 12
3.0000 2.3623 2.1149 2.0155 0.8258 0.2830 -0.2541 -0.5283 -0.6796 -1.3998 -1.5085 -1.8608 -2.0000 -2.3705
4 1 1 2 7 14 21 25 28 26 14 3 4 3 PLANAR 2

NR. 296
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 10; 9, 11; 10, 13; 11, 14; 12, 13; 12, 14;
1 0 -21 162 58 -574 -278 941 522 -640 -374 127 92 12
3.0000 2.3623 2.1149 1.4503 0.8258 0.7876 -0.2541 -0.2667 -0.6796 -1.1732 -1.5085 -1.8608 -2.0000 -2.7980
2 3 1 7 5 14 19 25 34 30 18 5 4 3 NONPLANAR 2

NR. 297
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 11; 10, 13; 11, 14; 12, 14; 13, 14;
1 0 -21 0 158 -4 -526 20 785 0 -473 -36 72 0 0
3.0000 2.3597 1.7236 1.3300 1.2301 0.4007 0.0000 0.0000 -0.6233 -0.7940 -1.2831 -1.9502 -2.6459 -2.7476
0 5 2 6 12 9 25 24 34 32 18 14 4 3 NONPLANAR 2

NR. 298
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 11; 9, 12; 10, 11; 10, 13; 12, 14; 13, 14;
1 0 -21 162 58 -570 -286 909 550 -544 -350 71 48 0
3.0000 2.3596 2.0483 1.6180 0.9424 0.4281 0.0000 -0.4567 -0.6180 -1.1980 -1.4358 -1.6759 -2.2920 -2.7201
2 3 1 5 9 14 20 23 28 31 20 5 4 3 NONPLANAR 1

NR. 299
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 11; 9, 13; 10, 11; 10, 14; 12, 13; 12, 14;
1 0 -21 162 24 -577 -100 982 180 -738 -150 191 48 0
3.0000 2.3593 1.8434 1.4309 1.0000 0.7891 0.0000 -0.2667 -0.6550 -1.0000 -1.6214 -1.7609 -2.4279 -2.6908
1 3 3 6 10 12 22 24 32 32 20 6 4 3 NONPLANAR 2

NR. 300
1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 11; 9, 13; 10, 12; 10, 14; 11, 12; 13, 14;
1 0 -21 166 84 -609 -408 1022 796 -650 -530 103 64 -12
3.0000 2.3588 2.1284 1.6568 1.0000 0.2852 0.2016 -0.5122 -1.0000 -1.0000 -1.6029 -2.0000 -2.1859 -2.3301
3 1 3 8 17 18 18 26 32 22 6 4 3 NONPLANAR 4

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 301
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 11; 9, 13; 10, 12; 10, 14; 11, 13; 12, 14;
 1 0 -21 -6 166 88 -613 -460 1038 1020 -582 -838 -129 68 12
 3.0000 2.3588 2.0000 1.6568 1.3623 0.2852 -0.1742 -0.5122 -1.0000 -1.0000 -1.6029 -1.6796 -2.1859 -2.5085
 3 1 1 5 12 17 18 14 20 30 22 6 4 3 NONPLANAR 4

NR. 302
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 12, 14;
 1 0 -21 -2 162 24 -577 -96 970 160 -690 -102 167 16 -12
 3.0000 2.3588 1.67159 1.6568 1.0000 0.4832 0.2852 -0.4366 -0.5122 -1.0000 -1.6029 -2.0000 -2.1859 -2.7625
 1 3 3 6 8 18 20 18 34 34 20 6 4 3 NONPLANAR 4

NR. 303
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 5; 4, 7; 5, 8; 6, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13;
 1 0 -21 -2 166 16 -629 -12 1198 -120 -1046 214 279 -32 -12
 3.0000 2.3588 1.6568 1.3623 1.0000 1.0000 0.2852 -0.1742 -0.5122 -1.6029 -1.6796 -2.0000 -2.1859 -2.5085
 1 1 7 6 6 17 22 20 32 42 18 0 4 3 NONPLANAR 4

NR. 304
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 14; 10, 11; 10, 12; 11, 13; 12, 14; 13, 14;
 1 0 -21 0 160 -8 -552 68 876 -152 -556 96 72 0 0
 3.0000 2.3570 1.5715 1.4142 1.2105 0.5542 0.0000 0.0000 -0.3125 -1.1087 -1.4142 -2.0611 -2.4465 -2.7645
 0 4 4 6 10 12 22 23 32 32 20 12 4 3 NONPLANAR 4

NR. 305
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 13; 10, 14; 11, 13; 11, 14; 12, 14;
 1 0 -21 0 160 -10 -548 94 828 -232 -427 112 55 -12 0
 3.0000 2.3490 1.7474 1.3557 1.0000 0.4773 0.2009 0.0000 -0.4204 -0.7376 -1.8311 -2.0953 -2.2690 -2.7767
 0 4 5 4 8 18 18 28 36 28 24 12 4 3 NONPLANAR 4

NR. 306
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 9; 8, 12; 9, 13; 10, 13; 10, 14; 11, 13; 11, 14; 12, 14;
 1 0 -21 -2 160 24 -547 -86 833 84 -497 8 79 -12 0
 3.0000 2.3483 2.0675 1.3431 0.8406 0.3642 0.1846 0.0000 -0.5433 -1.0540 -1.4943 -2.0607 -2.2073 -2.7886
 1 4 3 4 6 16 19 28 36 26 22 10 4 3 NONPLANAR 2

NR. 307
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 10; 9, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
 1 0 -21 -4 166 52 -624 -232 1159 416 -991 -242 299 -12 -9
 3.0000 2.3479 1.9313 1.4709 1.2115 0.4239 0.2594 -0.1515 -1.1037 -1.2844 -1.5678 -1.7756 -2.2391 -2.5228
 2 1 4 6 8 13 22 28 26 24 18 5 4 3 PLANAR 2

NR. 308
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
 1 0 -21 0 158 -6 -522 46 741 -86 -388 58 55 -12 0
 3.0000 2.3463 1.8235 1.4591 0.8108 0.3567 0.2691 0.0000 -0.5071 -0.8289 -1.3266 -2.1439 -2.4640 -2.7951
 0 5 3 4 10 14 23 26 34 30 18 14 4 3 NONPLANAR 2

NR. 309
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 12; 8, 13; 9, 12; 9, 14; 10, 13; 10, 14; 11, 13; 11, 14;
 1 0 -21 -2 158 28 -521 -128 730 188 -358 -18 67 -12 0
 3.0000 2.3452 2.0827 1.5321 0.4142 0.3473 0.3381 0.0000 -0.6841 -1.0000 -1.2506 -1.8794 -2.4142 -2.8313
 1 5 1 4 7 15 22 28 30 30 12 12 4 3 NONPLANAR 4

NR. 310
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 10; 9, 12; 10, 13; 11, 13; 11, 14; 12, 14; 13, 14;
 1 0 -21 -4 168 52 -656 -244 1332 520 -1356 -496 576 160 -49
 3.0000 2.3413 1.6975 1.4142 1.4142 0.8945 0.1961 -0.5154 -1.1476 -1.4142 -1.4142 -1.7422 -2.2575 -2.4666
 2 0 4 9 10 10 20 28 27 28 22 7 4 3 NONPLANAR 1

NR. 311
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 11; 9, 13; 10, 11; 10, 14; 12, 13; 12, 14; 13, 14;
 1 0 -21 -4 166 52 -622 -236 1137 452 -917 -304 335 64 -12
 3.0000 2.3399 1.9319 1.4142 1.3146 0.5176 0.1399 -0.5176 -0.5443 -1.4142 -1.5549 -1.9319 -2.2043 -2.4909
 2 1 4 5 10 15 16 28 32 24 16 8 4 3 NONPLANAR 2

NR. 312
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 11; 9, 12; 10, 13; 10, 14; 11, 13; 12, 14; 13, 14;
 1 0 -21 -4 166 52 -624 -232 1159 424 -1003 -304 335 68 -33
 3.0000 2.3342 1.9783 1.4540 1.0996 0.6391 0.2742 -0.5945 -0.6245 -1.3738 -1.7397 -1.7507 -2.1462 -2.5500
 2 1 4 6 8 13 20 30 30 23 16 8 4 3 NONPLANAR 2

NR. 313
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 11; 9, 13; 10, 13; 10, 14; 11, 12; 12, 14; 13, 14;
 1 0 -21 -4 166 50 -620 -206 1123 298 -914 -56 286 -58 3
 3.0000 2.3286 1.9805 1.6251 0.7224 0.6576 0.1395 0.0898 -1.0000 -1.2639 -1.7374 -1.9070 -2.1822 -2.4511
 2 1 5 4 6 17 24 26 25 24 18 5 4 3 PLANAR 2

NR. 314
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 9; 8, 13; 9, 13; 10, 12; 10, 14; 11, 12; 11, 14; 13, 14;
 1 0 -21 -4 162 56 -566 -264 877 480 -493 -292 40 24 0
 3.0000 2.3234 2.1701 1.4812 1.0000 0.3111 0.0000 -0.3111 -0.6421 -1.0000 -1.4812 -2.0000 -2.1701 -2.6813
 2 3 2 3 10 13 16 28 32 28 24 12 4 3 NONPLANAR 8

NR. 315
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 8; 7, 9; 8, 13; 9, 10; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
 1 0 -21 -6 162 90 -553 -450 732 806 -93 -252 -8 24 0
 3.0000 2.3234 2.0615 2.0615 0.3963 0.3963 0.0000 -0.6421 -0.6938 -0.6938 -1.7640 -1.7640 -2.0000 -2.6813
 3 3 0 1 9 15 19 30 30 24 18 6 4 3 NONPLANAR 12

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 316
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 9; 7, 10; 8, 9; 8, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
 1 0 -21 -2 158 30 -521 -162 740 326 -369 -196 40 24 0
 3.0000 2.3234 2.0615 1.5361 0.8453 0.3963 0.0000 -0.4645 -0.6421 -0.6938 -1.2376 -1.7640 -2.6792 -2.6813
 1 5 0 4 13 9 23 26 34 28 22 10 4 3 NONPLANAR 4

NR. 317
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 9; 7, 11; 8, 13; 8, 14; 9, 11; 10, 13; 10, 14; 12, 13; 12, 14;
 1 0 -21 -4 162 60 -566 -324 861 740 -357 -576 -208 -24 0
 3.0000 2.3234 2.0000 1.4812 1.4812 1.4812 0.0000 -0.3111 -0.3111 -0.6421 -1.0000 -1.0000 -2.1701 -2.1701 -2.6813
 2 3 0 3 18 15 12 24 24 24 24 12 3 3 NONPLANAR 24

NR. 318
 1 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 11; 7, 12; 8, 11; 8, 13; 9, 11; 9, 14; 10, 12; 10, 13; 12, 14; 13, 14;
 1 0 -21 0 158 -4 -522 12 753 60 -457 -92 88 24 0
 3.0000 2.3234 1.7757 1.4812 1.4812 1.0000 0.5892 0.0000 -0.3111 -0.6421 -0.7237 -1.0000 -2.1701 -2.6412 -2.6813
 0 5 2 4 16 8 22 32 28 36 20 12 4 3 NONPLANAR 8

NR. 319
 1 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 7, 11; 7, 12; 8, 13; 8, 14; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13;
 1 0 -21 0 162 -12 -574 108 933 -244 -573 -60 136 24 0
 3.0000 2.3234 1.4812 1.4812 1.0000 1.0000 0.0000 -0.3111 -0.3111 -0.6421 -0.6421 -2.0000 -2.1701 -2.1701 -2.6813
 0 3 6 4 12 15 14 36 36 24 36 0 3 3 NONPLANAR 24

NR. 320
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 6, 11; 7, 10; 8, 11; 8, 12; 9, 11; 9, 13; 10, 14; 12, 13; 12, 14; 13, 14;
 1 0 -21 -4 168 56 -664 -288 1392 704 -1488 -832 640 384 0
 3.0000 2.3234 1.4142 1.4142 1.4142 1.4142 0.0000 -0.6421 -1.4142 -1.4142 -1.4142 -1.4142 -2.0000 -2.6813
 2 0 2 13 10 9 18 27 32 30 20 6 4 3 NONPLANAR 4

NR. 321
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 12; 9, 13; 10, 13; 10, 14; 11, 12; 11, 14; 13, 14;
 1 0 -21 -4 168 50 -652 -218 1296 400 -1275 -284 547 48 -72
 3.0000 2.3215 1.8383 1.5466 1.1257 0.6581 0.4661 -0.4808 -1.0000 -1.3035 -1.6829 -1.8864 -2.2398 -2.3631
 2 0 5 7 8 14 22 26 26 28 22 7 4 3 NONPLANAR 1

NR. 322
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 10; 9, 13; 10, 13; 11, 12; 11, 14; 12, 14; 13, 14;
 1 0 -21 -6 168 84 -641 -418 1191 882 -981 -732 284 158 -33
 3.0000 2.3141 2.0888 1.5962 1.1636 0.5255 0.1826 -0.6736 -1.0000 -1.3646 -1.5157 -1.7826 -2.2631 -2.2711
 3 0 3 6 8 13 22 26 24 24 18 6 4 3 PLANAR 2

NR. 323
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
 1 0 -21 -2 164 20 -599 -58 1045 36 -773 52 171 -36 0
 3.0000 2.3079 1.7082 1.6892 1.0000 0.4371 0.2642 0.0000 -0.6744 -1.1488 -1.6488 -2.1109 -2.2356 -2.5840
 1 2 5 4 10 16 22 30 27 23 18 7 4 3 PLANAR 2

NR. 324
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 12; 11, 14; 12, 13; 13, 14;
 1 0 -21 -2 164 24 -611 -94 1149 144 -1045 -76 399 16 -48
 3.0000 2.3079 1.6892 1.5974 1.0000 0.7702 0.4371 -0.5025 -0.6744 -1.3262 -1.6488 -1.7484 -2.1109 -2.7905
 1 2 3 10 6 14 24 29 31 21 20 9 4 3 NONPLANAR 2

NR. 325
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
 1 0 -21 -2 160 26 -551 -104 863 120 -556 12 116 -24 0
 3.0000 2.3059 2.0996 1.4142 0.7553 0.3565 0.3212 0.0000 -0.6737 -1.1899 -1.4142 -1.8695 -2.2562 -2.8391
 1 4 2 6 4 16 24 30 30 30 8 8 4 3 PLANAR 2

NR. 326
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 12; 9, 13; 10, 11; 10, 13; 11, 14; 12, 14; 13, 14;
 1 0 -21 -2 164 26 -615 -116 1179 232 -1108 -208 428 64 -48
 3.0000 2.3059 1.6180 1.4142 1.4142 0.7553 0.3212 -0.6180 -0.6737 -1.4142 -1.4142 -1.8695 -2.0000 -2.8391
 1 2 2 12 6 15 20 28 32 32 12 12 4 3 NONPLANAR 2

NR. 327
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
 1 0 -21 -2 160 26 -549 -112 853 178 -548 -114 137 24 -9
 3.0000 2.3056 2.0898 1.3664 0.7888 0.6469 0.2080 -0.5214 -0.6258 -0.6824 -1.6708 -1.7462 -2.3689 -2.7900
 1 4 2 5 8 12 21 35 36 16 18 7 4 3 NONPLANAR 2

NR. 328
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 12; 9, 13; 10, 11; 10, 14; 11, 14; 12, 13; 13, 14;
 1 0 -21 -6 168 86 -641 -448 1177 1030 -868 -990 49 264 63
 3.0000 2.3056 2.0194 1.5851 1.3664 0.6469 -0.4639 -0.5214 -0.6824 -1.3143 -1.6421 -1.7462 -2.1841 -2.3689
 3 0 2 6 12 15 15 21 30 32 20 5 4 3 NONPLANAR 2

NR. 329
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 8; 6, 10; 7, 11; 8, 12; 9, 12; 9, 13; 10, 11; 10, 14; 11, 13; 12, 14; 13, 14;
 1 0 -21 -2 164 22 -601 -88 1065 182 -828 -206 221 60 -9
 3.0000 2.3056 1.7181 1.4293 1.3664 0.6469 0.1112 -0.5214 -0.6824 -0.7277 -1.7462 -1.9498 -2.3689 -2.5811
 1 2 4 5 14 13 15 34 34 20 20 9 4 3 NONPLANAR 2

NR. 330
 1 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 6, 10; 6, 11; 7, 12; 8, 9; 8, 10; 9, 11; 10, 13; 11, 14; 12, 13; 12, 14; 13, 14;
 1 0 -21 -4 168 52 -654 -244 1310 508 -1296 -444 549 103 -81
 3.0000 2.3028 1.7321 1.6180 1.3028 0.6180 0.4142 -0.6180 -1.0000 -1.3028 -1.6180 -1.7321 -2.3028 -2.4142
 2 0 4 8 10 13 22 23 26 35 24 6 4 3 NONPLANAR 4

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 331

Table with 5 rows and 14 columns of data for graph NR. 331.

NR. 332

Table with 5 rows and 14 columns of data for graph NR. 332.

NR. 333

Table with 5 rows and 14 columns of data for graph NR. 333.

NR. 334

Table with 5 rows and 14 columns of data for graph NR. 334.

NR. 335

Table with 5 rows and 14 columns of data for graph NR. 335.

NR. 336

Table with 5 rows and 14 columns of data for graph NR. 336.

NR. 337

Table with 5 rows and 14 columns of data for graph NR. 337.

NR. 338

Table with 5 rows and 14 columns of data for graph NR. 338.

NR. 339

Table with 5 rows and 14 columns of data for graph NR. 339.

NR. 340

Table with 5 rows and 14 columns of data for graph NR. 340.

NR. 341

Table with 5 rows and 14 columns of data for graph NR. 341.

NR. 342

Table with 5 rows and 14 columns of data for graph NR. 342.

NR. 343

Table with 5 rows and 14 columns of data for graph NR. 343.

NR. 344

Table with 5 rows and 14 columns of data for graph NR. 344.

NR. 345

Table with 5 rows and 14 columns of data for graph NR. 345.

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 346
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 10 8 11 8 12 9 13 9 14 10 13 11 14 12 13 14
1 0 -21 -2 164 26 -611 -124 1147 272 -1016 -272 316 96 0
3.0000 2.2690 1.6963 1.4142 1.4142 0.8220 0.0000 -0.3170 -0.7588 -1.4142 -1.4142 -1.6767 -2.2563 -2.7784
1 2 2 10 10 14 21 25 35 29 20 7 4 3 NONPLANAR 1

NR. 347
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 11 9 13 9 14 10 12 11 13 12 14 13 14
1 0 -21 -4 166 54 -624 -258 1151 518 -962 -396 290 78 -9
3.0000 2.2639 1.9805 1.6251 1.0683 0.6576 0.0898 -0.3384 -1.0000 -1.2639 -1.4294 -1.9070 -2.1822 -2.5643
2 1 3 6 10 15 22 25 27 29 22 7 4 3 NONPLANAR 2

NR. 348
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 10 8 11 8 12 9 12 9 13 10 14 11 13 12 14 13 14
1 0 -21 -2 166 22 -637 -82 1268 122 -1261 -48 516 -24 -36
3.0000 2.2623 1.6000 1.4142 1.4142 0.8126 0.3459 -0.2580 -1.0826 -1.4142 -1.4142 -1.7497 -2.2565 -2.6740
1 1 4 10 9 12 25 28 29 30 24 9 4 3 NONPLANAR 1

NR. 349
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 12 9 13 9 14 10 11 11 13 12 14 13 14
1 0 -21 -6 166 86 -611 -426 1026 828 -639 -486 143 60 -9
3.0000 2.2608 2.1429 1.8468 0.8140 0.4256 0.1300 -0.3925 -1.0000 -1.3931 -1.4453 -1.9008 -1.9640 -2.5243
3 1 2 4 7 15 25 27 24 24 18 6 4 3 PLANAR 2

NR. 350
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 12 8 9 8 10 9 13 10 14 11 12 11 14 12 13 13 14
1 0 -21 -2 164 22 -601 -84 1065 138 -840 -94 221 24 -9
3.0000 2.2525 1.8891 1.4759 1.1242 0.6482 0.1654 -0.3030 -0.5934 -1.2248 -1.4354 -2.0846 -2.3083 -2.6057
1 2 4 5 12 14 21 32 28 28 22 8 4 3 NONPLANAR 1

NR. 351
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 12 8 9 8 10 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 -2 166 20 -631 -64 1216 74 -1136 -22 442 -2 -57
3.0000 2.2492 1.7579 1.4413 1.2257 0.6180 0.5669 -0.4851 -0.6857 -1.2498 -1.6180 -1.9442 -2.3530 -2.5231
1 1 5 7 11 13 22 31 30 29 24 9 4 3 NONPLANAR 1

NR. 352
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 12 8 9 8 10 9 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 -2 164 24 -609 -94 1127 134 -981 -40 320 -30 -9
3.0000 2.2491 1.8908 1.4265 1.1519 0.6466 0.2581 -0.1289 -1.0000 -1.1268 -1.6555 -1.8383 -2.0923 -2.7613
1 2 3 9 6 17 25 24 32 31 22 7 4 3 NONPLANAR 1

NR. 353
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 7 5 9 6 10 6 11 7 10 8 12 8 13 9 12 9 14 10 13 11 12 11 14 13 14
1 0 -21 -2 166 20 -629 -68 1194 108 -1062 -94 355 32 -24
3.0000 2.2489 1.6348 1.5542 1.3086 0.7515 0.2429 -0.3724 -0.7012 -1.1455 -1.6198 -2.1010 -2.3224 -2.4786
1 1 5 6 13 15 17 32 31 28 24 9 4 3 NONPLANAR 1

NR. 354
1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 9 7 11 8 10 8 12 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 0 154 -0 -476 -4 623 56 -343 84 63 -28 3
3.0000 2.2470 2.2470 1.0000 0.5550 0.5550 0.2470 0.2470 -0.8019 -0.8019 -1.4450 -1.4450 -2.8019 -2.8019
0 7 0 7 2 7 42 7 70 7 14 7 4 3 PLANAR 28

NR. 355
1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 9 7 11 8 10 8 12 9 13 10 14 11 13 11 14 12 13 12 14
1 0 -21 0 154 -0 -476 -0 595 0 -343 0 91 0 -9
3.0000 2.2470 2.2470 0.8019 0.8019 0.5550 0.5550 -0.5550 -0.5550 -0.8019 -0.8019 -2.2470 -2.2470 -3.0000
0 7 0 7 0 21 0 77 0 49 0 10 4 3 NONPLANAR 28

NR. 356
1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 9 7 11 8 10 8 12 9 13 10 14 11 12 11 14 12 13 13 14
1 0 -21 0 158 -8 -520 76 723 208 -375 148 51 -28 3
3.0000 2.2470 2.1284 1.0000 0.8019 0.5550 0.2470 0.2016 -0.5550 -0.8019 -1.4450 -2.2470 -2.3301 -2.8019
0 5 4 3 6 14 26 35 34 28 14 11 4 3 NONPLANAR 4

NR. 357
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 8 7 9 8 11 9 13 10 12 10 13 11 14 12 14 13 14
1 0 -21 -4 162 60 -572 -300 907 552 -519 -244 131 24 -9
3.0000 2.2470 2.0472 1.8794 0.5550 0.4919 0.2470 -0.3473 -0.8019 -1.3793 -1.4450 -1.5321 -2.1598 -2.8019
2 3 0 6 6 18 26 25 26 25 18 5 4 3 PLANAR 4

NR. 358
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 8 7 9 8 11 9 13 10 12 10 14 11 14 12 13 13 14
1 0 -21 -4 166 52 -620 -236 1123 432 -931 -268 343 48 -45
3.0000 2.2470 2.0472 1.6511 0.8019 0.5550 0.4919 -0.5550 -0.8019 -1.2739 -1.3793 -2.1598 -2.2470 -2.3772
2 1 4 4 10 15 22 29 26 27 22 7 4 3 NONPLANAR 4

NR. 359
1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 8 7 9 8 11 9 13 10 13 10 14 11 14 12 13 12 14
1 0 -21 -4 162 60 -568 -312 875 640 -427 -416 15 76 15
3.0000 2.2470 2.0223 1.8794 0.8019 0.5550 -0.3473 -0.5087 -0.5550 -0.8019 -1.5321 -1.7745 -2.2470 -2.7391
2 3 0 4 12 16 18 29 32 24 16 8 4 3 NONPLANAR 4

NR. 360
1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 11 8 12 9 10 9 13 10 14 11 12 11 13 12 14 13 14
1 0 -21 0 158 -4 -524 28 755 -76 -395 96 63 -28 3
3.0000 2.2470 1.9520 1.5321 0.5550 0.3473 0.2968 0.2470 -0.6692 -0.8019 -1.4450 -1.8794 -2.5795 -2.8019
0 5 2 5 8 16 32 20 40 21 14 9 4 3 PLANAR 4

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 361
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 12; 11, 14; 12, 13; 13, 14;
 1 0 -21 0 158 -4 -520 12 735 52 -447 -56 111 12 -9
 3.0000 2.2470 1.9520 1.4605 0.8019 0.5550 0.2968 -0.5550 -0.6692 -0.7609 -0.8019 -2.2470 -2.5795 -2.6996
 0 5 2 3 16 8 24 42 24 26 14 11 4 3 NONPLANAR 4

NR. 362
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 11; 8, 12; 9, 13; 10, 13; 10, 14; 11, 14; 12, 13; 12, 14;
 1 0 -21 0 158 0 -536 -0 831 -0 -527 -0 127 0 -9
 3.0000 2.2470 1.8794 1.5321 0.8019 0.5550 0.3473 -0.3473 -0.5550 -0.8019 -1.5321 -1.8794 -2.2470 -3.0000
 0 5 0 11 0 32 0 61 0 55 0 14 4 3 NONPLANAR 4

NR. 363
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 9; 7, 11; 8, 12; 8, 13; 9, 12; 10, 11; 10, 14; 11, 13; 12, 14; 13, 14;
 1 0 -21 0 158 -0 -532 -20 839 72 -579 -68 147 12 -9
 3.0000 2.2470 1.8794 1.4605 1.0000 0.5550 0.2470 -0.3473 -0.7609 -0.8019 -1.4450 -1.5321 -2.6996 -2.8019
 0 5 0 9 10 10 34 13 54 18 14 13 4 3 NONPLANAR 4

NR. 364
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 10; 9, 13; 10, 14; 11, 13; 11, 14; 12, 13; 12, 14;
 1 0 -21 0 162 -12 -572 112 911 -300 -519 212 79 -40 3
 3.0000 2.2470 1.7580 1.5321 0.8019 0.5550 0.3473 0.0974 -0.5550 -0.8019 -1.8794 -2.1909 -2.2470 -2.6645
 0 3 6 3 10 19 20 36 32 17 28 8 4 3 NONPLANAR 4

NR. 365
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 10; 7, 11; 8, 9; 8, 12; 9, 13; 10, 14; 11, 12; 11, 13; 12, 14; 13, 14;
 1 0 -21 0 162 -8 -584 76 1027 -240 -811 300 199 -116 15
 3.0000 2.2470 1.6511 1.5321 1.0000 0.5550 0.3473 0.2470 -0.8019 -1.2739 -1.4450 -1.8794 -2.3772 -2.9019
 0 3 4 9 6 15 30 27 30 31 22 9 4 3 NONPLANAR 4

NR. 366
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 10; 9, 13; 11, 12; 11, 14; 12, 14; 13, 14;
 1 0 -21 -4 166 58 -630 -306 1189 730 -1004 -778 223 292 60
 3.0000 2.2439 1.8919 1.6180 1.2470 0.8877 -0.4450 -0.5034 -0.6180 -1.2266 -1.5887 -1.8019 -2.0000 -2.7047
 2 1 1 9 12 16 16 22 34 32 20 6 4 3 NONPLANAR 2

NR. 367
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 12; 9, 11; 9, 13; 10, 14; 11, 13; 12, 14; 13, 14;
 1 0 -21 -4 164 56 -598 -264 1030 476 -756 -256 221 24 -9
 3.0000 2.2437 2.1149 1.6635 0.7516 0.6180 0.1751 -0.2541 -1.0000 -1.1332 -1.6180 -1.8608 -1.9827 -2.7180
 2 2 2 6 6 17 26 25 24 24 18 5 4 3 PLANAR 2

NR. 368
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 10; 8, 12; 8, 13; 9, 12; 9, 13; 10, 14; 11, 12; 11, 14; 13, 14;
 1 0 -21 -2 164 24 -605 -106 1099 214 -913 -200 264 66 -9
 3.0000 2.2433 1.8531 1.4347 1.2470 0.7356 0.1004 -0.4450 -0.5841 -1.1695 -1.5785 -1.8019 -2.3628 -2.6722
 1 2 3 7 12 14 20 28 34 28 24 10 4 3 NONPLANAR 2

NR. 369
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 12; 9, 14; 10, 13; 11, 12; 11, 14; 13, 14;
 1 0 -21 -4 164 56 -594 -276 998 564 -660 -440 97 100 15
 3.0000 2.2361 2.1149 1.6180 1.0000 0.6180 -0.2541 -0.3820 -0.6180 -1.0000 -1.6180 -1.8608 -2.2361 -2.6180
 2 2 2 4 12 15 18 29 30 23 16 8 4 3 NONPLANAR 2

NR. 370
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 9; 8, 13; 9, 14; 10, 11; 10, 13; 11, 14; 12, 13; 12, 14;
 1 0 -21 -4 168 48 -650 -188 1282 252 -1264 -48 529 -60 -45
 3.0000 2.2361 2.1149 1.3028 1.0000 0.6180 0.6180 -0.2541 -1.0000 -1.6180 -1.6180 -1.8608 -2.2361 -2.3028
 2 0 6 6 4 15 28 25 26 35 24 6 4 3 NONPLANAR 4

NR. 371
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 8; 6, 7; 6, 10; 7, 11; 8, 12; 9, 12; 9, 13; 10, 13; 10, 14; 11, 13; 11, 14; 12, 14;
 1 0 -21 0 162 -16 -566 160 857 -464 -373 320 60 0 0
 3.0000 2.2361 2.0000 1.0000 1.0000 0.4142 0.4142 0.0000 0.0000 -1.0000 -2.0000 -2.2361 -2.4142 -2.4142
 0 3 8 0 8 20 20 36 36 20 28 10 4 3 NONPLANAR 8

NR. 372
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 12; 9, 11; 9, 13; 10, 14; 11, 12; 11, 14; 13, 14;
 1 0 -21 -2 162 24 -573 -96 934 120 -606 26 119 -24 0
 3.0000 2.2356 1.9782 1.6709 0.7131 0.4142 0.2706 0.0000 -0.6096 -1.2989 -1.4286 -1.8483 -2.4142 -2.6831
 1 3 3 4 9 17 28 26 26 25 18 7 4 3 PLANAR 1

NR. 373
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 12; 8, 13; 9, 13; 9, 14; 10, 11; 10, 12; 11, 14; 13, 14;
 1 0 -21 -6 166 88 -611 -456 1012 974 -524 -718 -94 70 15
 3.0000 2.2354 2.1149 1.8405 1.1228 0.3330 -0.2541 -0.4960 -0.6480 -1.2229 -1.6470 -1.8608 -1.9723 -2.5456
 3 1 1 4 11 17 18 22 30 32 20 5 4 3 NONPLANAR 1

NR. 374
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 13; 9, 14; 10, 12; 11, 12; 11, 14; 13, 14;
 1 0 -21 -4 166 56 -624 -288 1143 656 -895 -616 159 148 15
 3.0000 2.2336 1.9351 1.5994 1.3518 0.5980 -0.1245 -0.5387 -0.6953 -1.2260 -1.4746 -1.8141 -2.2962 -2.5464
 2 1 2 6 14 16 17 22 31 34 22 6 4 3 NONPLANAR 1

NR. 375
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 12; 9, 13; 10, 14; 11, 12; 11, 14; 13, 14;
 1 0 -21 -2 162 26 -575 -126 954 264 -655 -218 139 36 -9
 3.0000 2.2320 1.9694 1.5491 1.0983 0.4507 0.1780 -0.5379 -0.6478 -0.7593 -1.5594 -1.7916 -2.4536 -2.6879
 1 3 2 5 13 14 21 30 33 22 20 9 4 3 NONPLANAR 1

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14; DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 376
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 10; 8 12; 9 11; 9 13; 10 13; 11 14; 12 14; 13 14;
1 0 -21 -2 164 22 -603 -76 1079 72 -868 40 252 -32 -12
3.0000 2.2319 1.9280 1.5593 0.8709 0.6180 0.3851 -0.1719 -0.7107 -1.2943 -1.6180 -1.8431 -2.2900 -2.6754
1 2 4 6 8 17 26 26 29 28 20 8 4 3 NONPLANAR 1

NR. 377
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 10; 8 12; 9 13; 9 14; 10 13; 11 13; 11 14; 12 14;
1 0 -21 -2 162 26 -577 -118 964 210 -673 -116 164 16 -12
3.0000 2.2290 1.9581 1.6431 0.8949 0.4763 0.2960 -0.4137 -0.5453 -1.0764 -1.5613 -1.8318 -2.2946 -2.7743
1 3 2 6 9 18 23 26 33 23 20 9 4 3 NONPLANAR 1

NR. 378
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 9; 7 11; 8 11; 8 12; 9 13; 10 12; 10 14; 11 14; 12 13; 13 14;
1 0 -21 0 160 -8 -550 76 846 -224 -476 192 45 -28 3
3.0000 2.2283 1.9671 1.3604 0.8120 0.4142 0.2852 0.1859 -0.4262 -1.0000 -1.7746 -1.8432 -2.4142 -2.7948
0 4 4 5 6 19 28 24 38 26 18 9 4 3 NONPLANAR 2

NR. 379
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 8; 4 9; 5 8; 5 7; 6 10; 7 11; 8 12; 9 10; 9 13; 10 14; 11 13; 11 14; 12 13; 12 14;
1 0 -21 0 164 -16 -598 160 1014 -496 -608 480 -67 -15 3
3.0000 2.2283 1.7746 1.3604 1.0000 0.4142 0.4142 0.1859 -0.1859 -1.3604 -1.7746 -2.2283 -2.4142 -2.4142
0 2 8 3 8 20 24 30 32 30 22 11 4 3 NONPLANAR 2

NR. 380
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 9; 7 11; 8 12; 8 13; 9 12; 10 13; 10 14; 11 13; 11 14; 12 14;
1 0 -21 0 160 -8 -548 68 836 -160 -500 104 92 -24 0
3.0000 2.2282 1.9672 1.2670 1.0000 0.4631 0.2964 0.0000 -0.6400 -0.7638 -1.4533 -2.2689 -2.2970 -2.7588
0 4 4 4 10 15 24 35 30 28 20 8 4 3 NONPLANAR 2

NR. 381
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 9; 8 13; 9 14; 10 11; 10 12; 11 13; 12 14; 13 14;
1 0 -21 -4 166 52 -622 -232 1137 416 -941 -288 268 64 -12
3.0000 2.2277 2.1358 1.4142 1.0994 0.6622 0.1303 -0.4001 -0.6622 -1.4142 -1.6453 -1.8811 -2.1358 -2.5310
2 1 4 5 8 15 22 27 30 30 22 7 4 3 NONPLANAR 1

NR. 382
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 12; 8 13; 9 13; 9 14; 10 12; 10 14; 11 13; 11 14;
1 0 -21 -2 162 28 -581 -140 994 296 -730 -234 163 28 -12
3.0000 2.2258 1.9447 1.5321 1.1953 0.3473 0.2832 -0.3986 -0.7524 -1.0000 -1.4508 -1.8794 -2.2166 -2.8305
1 3 1 8 9 19 19 25 34 34 12 12 4 3 NONPLANAR 1

NR. 383
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 9; 8 13; 9 14; 10 12; 10 13; 11 13; 11 14; 12 14;
1 0 -21 -2 166 18 -627 -38 1174 -36 -1003 142 283 -76 3
3.0000 2.2255 1.8962 1.3527 1.1981 0.6233 0.2434 0.0483 -0.7905 -1.2552 -1.7337 -2.0836 -2.2434 -2.4811
1 1 6 5 9 19 22 27 32 31 24 9 4 3 NONPLANAR 1

NR. 384
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 9; 8 13; 9 14; 10 12; 10 13; 11 12; 11 14; 13 14;
1 0 -21 -2 164 22 -599 -88 1047 168 -890 -160 216 40 -12
3.0000 2.2245 1.9276 1.4598 1.1701 0.6180 0.1743 -0.4352 -0.6889 -0.8319 -1.6180 -2.0569 -2.4621 -2.4812
1 2 4 4 14 15 17 32 32 28 26 10 4 3 NONPLANAR 2

NR. 385
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 10; 8 13; 9 12; 9 14; 10 14; 11 12; 11 13; 13 14;
1 0 -21 -2 164 22 -599 -88 1047 168 -890 -160 216 40 -12
3.0000 2.2245 1.9276 1.4598 1.1701 0.6180 0.1743 -0.4352 -0.6889 -0.8319 -1.6180 -2.0569 -2.4621 -2.4812
1 2 4 4 14 15 17 34 31 26 22 7 4 3 NONPLANAR 1

NR. 386
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 10; 8 11; 9 12; 9 13; 10 13; 11 14; 12 14; 13 14;
1 0 -21 -2 162 24 -575 -96 960 130 -692 -42 170 6 -9
3.0000 2.2242 2.0895 1.4187 0.8728 0.6180 0.2476 -0.2905 -0.5456 -1.1962 -1.6180 -1.6933 -2.4460 -2.6811
1 3 3 5 9 13 26 30 30 26 20 9 4 3 NONPLANAR 1

NR. 387
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 10; 8 13; 9 10; 9 14; 11 12; 11 13; 12 14; 13 14;
1 0 -21 -2 166 22 -633 -90 1232 178 -1165 -176 436 72 -36
3.0000 2.2234 1.6792 1.4142 1.4142 0.8555 0.2376 -0.5355 -0.6492 -1.4142 -1.4142 -1.8453 -2.4297 -2.5361
1 1 4 8 13 12 22 30 31 29 22 9 4 3 NONPLANAR 1

NR. 388
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 8; 7 11; 8 12; 9 11; 9 13; 10 12; 10 13; 11 14; 12 14; 13 14;
1 0 -21 0 160 -8 -546 68 810 -168 -408 128 57 -28 3
3.0000 2.2200 1.8608 1.6180 0.6180 0.4142 0.2541 0.2314 -0.6180 -0.7103 -1.6180 -2.1149 -2.4142 -2.7411
0 4 4 3 10 19 26 31 26 27 16 8 4 3 PLANAR 4

NR. 389
1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 8; 7 11; 8 12; 9 12; 9 13; 10 11; 10 13; 11 14; 12 14; 13 14;
1 0 -21 0 160 -4 -550 8 862 88 -592 -140 125 24 -9
3.0000 2.2200 1.6180 1.6180 1.3028 0.4142 0.2314 -0.6180 -0.6180 -0.7103 -1.0000 -2.3028 -2.4142 -2.7411
0 4 2 5 18 11 18 40 26 31 16 12 4 3 NONPLANAR 4

NR. 390
1 2; 1 3; 1 4; 2 3; 2 5; 3 6; 4 7; 4 8; 5 7; 5 9; 6 10; 6 11; 7 12; 8 10; 8 13; 9 10; 9 14; 11 13; 11 14; 12 13; 12 14;
1 0 -21 -2 166 20 -629 -64 1190 64 -1034 30 303 -72 0
3.0000 2.2192 1.7321 1.5321 1.3394 0.4142 0.3473 0.0000 -1.0000 -1.0904 -1.7321 -1.8794 -2.4142 -2.4682
1 1 5 6 11 17 24 24 28 34 24 6 4 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 391
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 12; 9, 14; 10, 11; 11, 14; 12, 13; 13, 14;
 1 0 -21 -4 164 54 -594 -246 1006 424 -711 -226 160 18 -9
 3.0000 2.2175 2.2106 1.5215 0.9484 0.3656 0.2574 -0.2990 -0.6877 -1.3974 -1.5142 -1.7660 -2.2530 -2.6037
 2 2 3 4 8 13 24 31 27 24 18 5 4 3 PLANAR 2

NR. 392
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 8; 7, 9; 8, 13; 9, 11; 10, 13; 10, 14; 11, 14; 12, 13; 12, 14;
 1 0 -21 -4 164 58 -594 -306 990 696 -587 -606 -52 70 15
 3.0000 2.2175 2.0718 1.5215 1.4020 0.3656 -0.2990 -0.5252 -0.6877 -0.7531 -1.5142 -1.8768 -2.3187 -2.6037
 2 2 1 4 16 15 14 26 33 31 22 7 4 3 NONPLANAR 2

NR. 393
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 12, 13; 13, 14;
 1 0 -21 0 160 -6 -550 42 858 -80 -543 38 132 -5 -9
 3.0000 2.2175 1.8633 1.5215 0.8487 0.5704 0.3656 -0.2990 -0.6301 -0.6877 -1.5142 -1.9626 -2.6037 -2.6896
 0 4 3 5 12 13 28 31 31 23 20 9 4 3 NONPLANAR 2

NR. 394
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 8; 7, 11; 8, 12; 9, 12; 9, 13; 10, 11; 10, 14; 11, 13; 12, 14; 13, 14;
 1 0 -21 0 160 -2 -558 -2 930 48 -675 -78 152 6 -9
 3.0000 2.2175 1.6497 1.5215 1.3599 0.3656 0.3252 -0.2990 -0.6877 -0.8954 -1.5142 -1.6417 -2.6037 -2.7976
 0 4 1 9 12 13 28 18 47 22 20 11 4 3 NONPLANAR 2

NR. 395
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 11; 9, 13; 9, 14; 10, 13; 11, 14; 12, 13; 12, 14;
 1 0 -21 -2 164 24 -609 -94 1131 130 -1013 -36 380 -2 -33
 3.0000 2.2175 1.9656 1.4224 1.0000 0.6895 0.4549 -0.2934 -1.0000 -1.0950 -1.6643 -1.7759 -2.1471 -2.7741
 1 2 3 9 6 16 26 26 32 28 24 10 4 3 NONPLANAR 2

NR. 396
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 11; 9, 14; 10, 12; 11, 14; 12, 13; 13, 14;
 1 0 -21 -4 166 54 -624 -258 1155 514 -994 -392 350 86 -33
 3.0000 2.2159 2.0730 1.5879 1.0000 0.6759 0.2421 -0.5001 -1.0000 -1.2117 -1.4269 -1.9577 -2.2612 -2.5372
 2 1 3 6 10 14 24 27 24 27 22 7 4 3 NONPLANAR 1

NR. 397
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 13; 9, 14; 10, 11; 11, 14; 12, 13; 12, 14;
 1 0 -21 -4 166 52 -622 -232 1141 408 -973 -248 340 32 -24
 3.0000 2.2157 2.1393 1.5112 0.8927 0.7094 0.2666 -0.3320 -1.0000 -1.1698 -1.6338 -1.8733 -2.2312 -2.4949
 2 1 4 5 8 14 24 29 27 28 22 7 4 3 NONPLANAR 1

NR. 398
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 11; 9, 13; 10, 12; 11, 14; 12, 14; 13, 14;
 1 0 -21 -2 166 22 -635 -82 1242 124 -1183 -70 463 16 -57
 3.0000 2.2147 1.6988 1.5892 1.2007 0.7242 0.4464 -0.5090 -0.6678 -1.3794 -1.6387 -1.8579 -2.1351 -2.6859
 1 1 4 9 9 16 24 26 31 30 22 9 4 3 NONPLANAR 1

NR. 399
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 12; 9, 13; 10, 14; 11, 13; 11, 14; 12, 14;
 1 0 -21 -2 164 22 -603 -76 1079 72 -864 40 220 -48 0
 3.0000 2.2146 1.9893 1.4142 1.1136 0.4578 0.2806 0.0000 -0.7569 -1.4142 -1.4547 -1.8924 -2.2771 -2.6747
 1 2 4 6 3 17 25 26 31 30 22 7 4 3 NONPLANAR 1

NR. 400
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 8; 7, 9; 8, 13; 9, 11; 10, 13; 10, 14; 11, 12; 12, 14; 13, 14;
 1 0 -21 -8 168 120 -624 -648 988 1472 -224 -1136 -592 -96 0
 3.0000 2.2143 2.2143 1.8136 1.4142 0.0000 -0.4707 -0.5392 -0.5392 -1.4142 -1.6751 -1.6751 -2.0000 -2.3429
 4 0 0 4 12 17 16 28 37 24 6 4 3 NONPLANAR 8

NR. 401
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 12; 9, 13; 10, 11; 11, 14; 12, 14; 13, 14;
 1 0 -21 -4 164 56 -600 -264 1052 496 -816 -368 208 96 0
 3.0000 2.2143 2.2143 1.4142 1.0000 0.7321 0.0000 -0.5392 -0.5392 -1.4142 -1.6751 -1.6751 -2.0000 -2.7321
 2 2 2 7 6 13 22 31 32 24 16 8 4 3 NONPLANAR 2

NR. 402
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 7; 5, 9; 6, 10; 6, 11; 7, 12; 8, 10; 8, 13; 9, 13; 9, 14; 10, 13; 11, 12; 11, 14; 12, 14;
 1 0 -21 -6 168 86 -639 -448 1155 1016 -808 -920 28 192 36
 3.0000 2.2143 2.1149 1.6751 1.3028 0.5392 -0.2541 -0.5392 -1.0000 -1.0000 -1.6751 -1.8608 -2.2143 -2.3028
 3 0 2 5 12 19 17 17 26 31 20 5 4 3 NONPLANAR 2

NR. 403
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 8; 7, 9; 8, 13; 9, 11; 10, 12; 10, 13; 11, 14; 12, 14; 13, 14;
 1 0 -21 -4 164 60 -604 -312 1068 680 -784 -576 112 96 0
 3.0000 2.2143 2.0979 1.4142 1.4142 0.4527 0.0000 -0.5392 -0.7528 -1.4142 -1.4142 -1.6751 -2.0000 -2.7977
 2 2 0 9 8 17 20 22 32 32 22 7 4 3 NONPLANAR 2

NR. 404
 1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 6; 4, 8; 5, 9; 6, 10; 7, 10; 7, 11; 8, 12; 8, 13; 9, 11; 9, 14; 10, 12; 11, 13; 12, 14; 13, 14;
 1 0 -21 0 160 -4 -556 24 916 -56 -656 48 144 0 0
 3.0000 2.2143 1.8662 1.4142 1.0000 0.7321 0.0000 0.0000 -0.5392 -1.2108 -1.4142 -1.6751 -2.6554 -2.7321
 0 4 2 8 10 11 34 21 38 29 14 11 4 3 NONPLANAR 4

NR. 405
 1, 2; 1, 3; 1, 4; 2, 3; 2, 5; 3, 6; 4, 7; 4, 8; 5, 9; 5, 10; 6, 11; 6, 12; 7, 9; 7, 11; 8, 10; 8, 13; 9, 14; 10, 11; 12, 13; 12, 14; 13, 14;
 1 0 -21 -4 168 56 -656 -300 1316 768 -1256 -944 368 448 96
 3.0000 2.2143 1.8136 1.4142 1.4142 1.1701 -0.4707 -0.5392 -0.6889 -1.4142 -1.4142 -1.6751 -2.3429 -2.4812
 2 0 2 9 16 13 14 22 38 41 16 0 4 3 NONPLANAR 4

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 406
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 10 7 11 8 11 8 12 9 13 9 14 10 13 11 14 12 13 12 14
 1 0 -21 0 160 -0 -568 0 980 0 -736 0 144 0 0
 3.0000 2.2143 1.6751 1.4142 1.4142 0.5392 0.0000 0.0000 -0.5392 -1.4142 -1.4142 -1.6751 -2.2143 -3.0000
 0 4 0 14 0 33 0 56 0 65 0 14 4 3 NONPLANAR 4

NR. 407
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 11 9 14 10 12 11 13 12 14 13 14
 1 0 -21 -2 166 20 -629 -64 1190 68 -1042 6 323 -20 -12
 3.0000 2.2130 1.6976 1.6687 1.1429 0.6923 0.2552 -0.1713 -0.7557 -1.3367 -1.5361 -2.0759 -2.2574 -2.5364
 1 1 5 6 11 17 23 27 27 32 24 6 4 3 NONPLANAR 1

NR. 408
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 12 9 14 10 14 11 13 11 14 12 13
 1 0 -21 -2 164 20 -597 -58 1027 22 -741 88 156 -46 3
 3.0000 2.2113 1.9949 1.5415 0.9106 0.4142 0.2512 0.0984 -0.6673 -1.2016 -1.5845 -2.0749 -2.4142 -2.4795
 1 2 5 3 10 18 23 30 27 28 22 8 4 3 NONPLANAR 1

NR. 409
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 13 9 14 10 12 11 13 11 14 12 14
 1 0 -21 -2 166 20 -627 -68 1168 106 -976 -94 286 22 -21
 3.0000 2.2039 1.7057 1.6180 1.2893 0.5984 0.2774 -0.3928 -0.6180 -1.0499 -1.8063 -2.1008 -2.2145 -2.5064
 1 1 5 5 13 19 17 27 34 30 22 9 4 3 NONPLANAR 1

NR. 410
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 11 8 12 9 11 9 13 10 13 10 14 11 14 12 13 12 14
 1 0 -21 0 162 -10 -576 94 943 -270 -582 244 62 -34 3
 3.0000 2.2030 1.7574 1.6046 0.8378 0.5414 0.2672 0.1293 -0.4199 -1.0832 -1.7411 -2.0905 -2.2564 -2.7475
 0 3 5 5 8 21 25 27 33 28 18 11 4 3 NONPLANAR 1

NR. 411
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 11 8 12 9 12 9 13 10 13 10 14 11 13 11 14 12 14
 1 0 -21 0 162 -8 -578 64 969 -140 -677 88 140 -24 0
 3.0000 2.2015 1.6545 1.5546 1.2206 0.5172 0.1787 0.0000 -0.6465 -0.9103 -1.5492 -2.1567 -2.3218 -2.7424
 0 3 4 6 12 17 21 31 35 27 22 9 4 3 NONPLANAR 1

NR. 412
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 11 9 13 10 14 11 14 12 13 12 14
 1 0 -21 -2 165 20 -633 -52 1222 -24 -1122 205 375 -143 12
 3.0000 2.2014 1.8697 1.5321 1.0000 0.6425 0.3473 0.1160 -1.0000 -1.3551 -1.7982 -1.8794 -2.5000 -2.6762
 1 1 5 8 5 19 30 22 26 34 24 6 4 3 NONPLANAR 2

NR. 413
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 10 7 11 8 12 8 13 9 11 9 12 10 14 11 13 12 14 13 14
 1 0 -21 0 162 -8 -580 68 991 -176 -743 164 187 -36 -9
 3.0000 2.2007 1.7570 1.4997 1.0000 0.6527 0.4001 -0.1541 -0.5780 -1.1492 -1.4247 -2.0904 -2.3550 -2.7587
 0 3 4 7 10 15 26 32 29 32 18 12 4 3 NONPLANAR 1

NR. 414
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 5 10 6 11 6 12 7 8 7 9 8 13 9 11 10 12 10 14 11 14 12 13 13 14
 1 0 -21 -4 166 54 -622 -262 1133 546 -912 -458 235 100 -12
 3.0000 2.2002 2.0853 1.5177 1.2173 0.5741 0.1015 -0.5595 -0.7326 -1.1996 -1.4994 -1.9273 -2.2987 -2.4795
 2 1 3 5 12 15 19 26 31 33 22 6 4 3 NONPLANAR 1

NR. 415
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 10 7 11 8 11 8 12 9 12 9 13 10 14 11 13 12 14 13 14
 1 0 -21 0 162 -6 -584 46 1027 -110 -814 96 213 -30 -9
 3.0000 2.1993 1.6271 1.4886 1.3041 0.5720 0.3422 -0.1539 -0.6723 -1.1295 -1.5054 -1.3388 -2.4427 -2.7909
 0 3 3 9 10 15 26 25 39 29 20 11 4 3 NONPLANAR 1

NR. 416
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 11 9 14 10 13 11 14 12 13 12 14
 1 0 -21 -6 168 84 -641 -414 1191 -842 -1017 -636 432 162 -81
 3.0000 2.1987 2.1987 1.7321 0.7135 0.7135 0.4142 -1.0000 -1.0000 -1.0000 -1.7321 -1.9122 -1.9122 -2.4142
 3 0 3 6 6 15 28 24 18 22 18 6 4 3 PLANAR 6

NR. 417
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 11 9 14 10 14 11 13 12 13 12 14
 1 0 -21 -2 168 16 -657 -14 1323 -150 -1285 384 444 -234 27
 3.0000 2.1987 1.7321 1.5962 1.0000 0.7135 0.4142 0.1826 -1.0000 -1.5157 -1.7321 -1.9122 -2.2631 -2.4142
 1 0 7 7 6 19 30 22 24 38 26 4 4 3 NONPLANAR 2

NR. 418
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 13 9 14 10 14 11 12 11 14 12 13
 1 0 -21 -2 166 20 -629 -64 1190 72 -1046 -26 339 8 -24
 3.0000 2.1940 1.8603 1.4515 1.1983 0.7332 0.2935 -0.3300 -0.6562 -1.2244 -1.7483 -1.9470 -2.2843 -2.5407
 1 1 5 6 11 17 21 29 32 29 22 9 4 3 NONPLANAR 1

NR. 419
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 7 5 9 6 10 6 11 7 12 8 10 8 13 9 13 9 14 10 14 11 12 11 13 12 14
 1 0 -21 -2 168 18 -659 -44 1343 4 -1356 72 555 -32 -48
 3.0000 2.1929 1.7110 1.4142 1.2145 1.0000 0.3825 -0.3016 -0.8238 -1.4142 -1.6817 -2.0000 -2.2256 -2.4681
 1 0 6 8 10 16 22 28 33 34 22 6 4 3 NONPLANAR 1

NR. 420
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 4 9 5 8 6 9 6 10 7 10 7 11 8 12 9 13 10 14 11 12 11 13 12 14 13 14
 1 0 -21 0 164 -12 -606 116 1094 -368 -852 428 157 -116 15
 3.0000 2.1909 1.6180 1.5767 1.0000 0.6180 0.4142 0.2032 -0.6180 -1.3985 -1.6180 -1.9225 -2.4142 -2.6497
 0 2 6 7 8 16 30 28 30 30 26 9 4 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 421

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 9 6 10 6 11 7 12 8 13 8 14 9 13 9 14 10 12 10 13 11 12 11 14
1 0 -21 -2 164 28 -613 -146 1155 358 -1033 -416 332 178 15
3.0000 2.1886 1.8430 1.4452 1.2470 1.0000 -0.1083 -0.4450 -0.8318 -1.0000 -1.5875 -1.8019 -2.1191 -2.8302
1 2 1 11 10 18 16 24 40 40 12 12 3 3 NONPLANAR 4

NR. 422

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 9 6 10 6 11 7 12 8 13 8 14 9 13 9 14 10 11 10 12 11 13 12 14
1 0 -21 -4 166 54 -622 -262 1129 558 -888 -522 187 160 24
3.0000 2.1873 2.1149 1.4367 1.2470 0.7383 -0.2541 -0.4450 -0.5753 -1.0987 -1.8019 -1.8608 -2.1457 -2.5426
2 1 3 5 12 16 16 26 36 32 20 6 4 3 NONPLANAR 2

NR. 423

1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 8 7 11 8 12 9 13 9 14 10 13 10 14 11 12 11 13 12 14
1 0 -21 0 160 -6 -550 46 850 -108 -511 102 92 -34 3
3.0000 2.1856 1.9009 1.5662 0.8364 0.3429 0.2797 0.1602 -0.7567 -0.7741 -1.4673 -2.0381 -2.4583 -2.7773
0 4 3 5 10 18 27 24 38 25 18 12 4 3 NONPLANAR 2

NR. 424

1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 9 6 10 7 11 7 12 8 13 9 11 10 12 10 14 11 14 12 13 13 14
1 0 -21 0 164 -12 -602 104 1062 -264 -812 212 209 -48 -9
3.0000 2.1836 1.6180 1.4296 1.3023 0.6180 0.4142 -0.1290 -0.6180 -1.0000 -1.6180 -2.3028 -2.4142 -2.4842
0 2 6 5 14 14 20 40 28 28 28 8 4 3 NONPLANAR 2

NR. 425

1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 8 5 9 5 10 6 11 6 12 7 8 7 9 8 13 9 14 10 11 10 14 11 13 12 13 12 14
1 0 -21 -4 164 56 -592 -276 980 536 -620 -312 132 40 -12
3.0000 2.1832 2.0774 1.8324 0.8449 0.3409 0.2646 -0.5119 -0.6562 -1.1762 -1.4403 -1.8199 -2.4478 -2.4911
2 2 2 3 12 16 22 27 28 29 22 7 4 3 NONPLANAR 2

NR. 426

1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 10 7 11 8 12 8 13 9 12 9 13 10 14 11 12 11 14 13 14
1 0 -21 0 160 -4 -552 16 876 24 -612 -56 164 16 -12
3.0000 2.1832 1.8324 1.5675 1.0000 0.6004 0.2646 -0.4547 -0.6562 -0.7819 -1.1762 -2.1458 -2.4478 -2.7857
0 4 2 6 14 14 22 31 36 29 18 13 4 3 NONPLANAR 2

NR. 427

1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 9 6 10 7 11 7 12 8 13 9 14 10 11 10 13 11 14 12 13 12 14
1 0 -21 0 164 -12 -604 112 1072 -328 -792 328 112 -48 0
3.0000 2.1797 1.6751 1.4142 1.2607 0.5392 0.3843 0.0000 -0.4223 -1.4142 -1.5084 -2.2143 -2.2442 -2.6498
0 2 6 6 10 18 24 28 36 32 20 12 4 3 NONPLANAR 2

NR. 428

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 10 8 11 8 13 9 12 10 13 11 14 12 14 13 14
1 0 -21 -2 162 28 -579 -144 984 298 -708 -206 154 18 -9
3.0000 2.1753 1.9792 1.6433 1.0820 0.3436 0.2671 -0.3131 -0.7347 -1.1784 -1.4224 -1.6557 -2.4196 -2.7656
1 3 1 7 11 16 26 22 31 31 20 8 4 3 NONPLANAR 1

NR. 429

1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 9 6 10 7 11 7 12 8 13 9 14 10 11 10 12 11 13 12 14 13 14
1 0 -21 0 164 -14 -598 130 1014 -356 -651 266 108 -46 3
3.0000 2.1753 1.7108 1.5457 1.0000 0.6458 0.2640 0.0849 -0.5235 -0.9089 -2.0533 -2.1007 -2.3319 -2.5083
0 2 7 3 12 20 18 36 34 22 30 9 3 3 NONPLANAR 2

NR. 430

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 10 8 13 8 14 9 11 10 13 11 14 12 13 12 14
1 0 -21 -2 162 28 -575 -156 952 394 -644 -386 90 94 15
3.0000 2.1722 1.9581 1.6180 1.1850 0.5965 -0.2827 -0.4563 -0.6180 -0.7700 -1.2848 -1.9703 -2.4632 -2.6844
1 3 1 5 17 14 17 30 33 29 22 7 4 3 NONPLANAR 1

NR. 431

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 10 8 11 8 13 9 12 10 14 11 14 12 13 13 14
1 0 -21 -2 164 26 -609 -124 1129 258 -992 -222 345 56 -33
3.0000 2.1709 1.9280 1.4976 1.1939 0.6776 0.2823 -0.5111 -0.7689 -1.2022 -1.4593 -1.7814 -2.2644 -2.7631
1 2 2 9 10 16 23 25 34 30 22 9 4 3 NONPLANAR 1

NR. 432

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 11 8 10 8 13 9 12 10 13 11 14 12 14 13 14
1 0 -21 -4 166 56 -626 -284 1169 616 -997 -528 296 96 -56
3.0000 2.1701 2.0961 1.4142 1.4142 0.4142 0.3111 -0.5720 -1.0000 -1.4142 -1.4142 -1.4312 -2.4142 -2.5141
2 1 2 7 12 13 24 24 24 34 24 6 4 3 NONPLANAR 4

NR. 433

1 2 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 9 6 10 7 11 7 12 8 13 9 14 10 11 10 14 11 13 12 13 12 14
1 0 -21 0 162 -10 -574 86 937 -214 -620 154 135 -36 0
3.0000 2.1642 1.9122 1.3772 1.0000 0.6180 0.2739 0.0000 -0.7135 -0.7729 -1.6180 -2.1937 -2.3914 -2.6511
0 3 5 4 12 16 23 34 32 28 24 11 4 3 NONPLANAR 1

NR. 434

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 11 8 10 8 13 9 12 10 14 11 13 12 14 13 14
1 0 -21 -2 -626 22 -629 -94 1188 202 -1037 -192 312 40 -12
3.0000 2.1539 1.7027 1.6106 1.4142 0.6442 0.1512 -0.2872 -0.8273 -1.1679 -1.4142 -2.1804 -2.2863 -2.5134
1 1 4 6 15 17 19 27 28 37 26 4 4 3 NONPLANAR 2

NR. 435

1 2 1 3 1 4 2 3 2 5 3 6 4 7 4 8 5 9 5 10 6 11 6 12 7 9 7 11 8 10 8 13 9 12 10 14 11 14 12 13 13 14
1 0 -21 -2 166 26 -641 -130 1292 314 -1309 -368 548 168 -36
3.0000 2.1539 1.7027 1.4142 1.4142 1.0615 0.1512 -0.6037 -0.8273 -1.4142 -1.4142 -1.6938 -2.1804 -2.7640
1 1 2 12 11 15 21 24 38 35 20 6 4 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 436
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 11; 7 12; 8 13; 8 14; 9 11; 9 12; 10 13; 10 14; 11 13; 12 14;
 1 0 -21 0 160 -8 -550 72 862 -208 -560 168 117 -24 -9
 3.0000 2.1451 2.1149 1.0000 1.0000 0.6180 0.5240 -0.2541 -0.3820 -1.0000 -1.6180 -1.8608 -2.6180 -2.6691
 0 4 4 5 8 12 32 28 36 28 20 14 4 3 NONPLANAR 8

NR. 437
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 10; 8 11; 8 12; 9 13; 10 14; 11 13; 12 14; 13 14;
 1 0 -21 -2 164 22 -603 -76 1083 68 -900 60 276 -72 0
 3.0000 2.1451 2.0896 1.4142 1.4142 1.0000 0.5240 0.3565 0.0000 -1.0000 -1.1899 -1.4142 -2.0000 -2.2567 -2.6691
 1 2 4 6 8 16 26 30 24 32 28 6 4 3 NONPLANAR 4

NR. 438
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 10; 8 12; 9 13; 10 13; 11 14; 12 14; 13 14;
 1 0 -21 -2 164 26 -607 -128 1115 264 -936 -192 252 0 0
 3.0000 2.1451 1.9354 1.4142 1.4142 1.0000 0.5240 0.0000 0.0000 -1.0000 -1.4142 -1.4142 -1.4626 -2.4728 -2.6691
 1 2 2 8 12 14 28 22 28 36 24 6 4 3 NONPLANAR 4

NR. 439
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 10; 8 12; 9 13; 10 14; 11 13; 12 14; 13 14;
 1 0 -21 -2 164 26 -603 -136 1071 340 -816 -348 156 72 0
 3.0000 2.1451 1.8136 1.6180 1.4142 1.0000 0.5240 0.0000 -0.4707 -0.6180 -1.0000 -1.4142 -2.0000 -2.3429 -2.6691
 1 2 2 6 16 18 18 24 30 34 24 6 4 3 NONPLANAR 4

NR. 440
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 10; 8 12; 9 13; 10 14; 11 14; 12 13; 13 14;
 1 0 -21 -2 168 22 -667 -88 1415 164 -1580 -144 828 48 -144
 3.0000 2.1451 1.6180 1.4142 1.4142 1.0000 0.5240 -0.6180 -1.0000 -1.4142 -1.4142 -2.0000 -2.0000 -2.6691
 1 0 4 12 10 13 24 30 32 32 24 8 4 3 NONPLANAR 4

NR. 441
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 13; 8 14; 9 12; 10 13; 10 14; 11 13; 12 14;
 1 0 -21 -2 166 24 -631 -124 1208 354 -1096 -502 346 254 39
 3.0000 2.1440 1.6180 1.6180 1.3451 1.0953 -0.2624 -0.6180 -0.6180 -0.8414 -1.4773 -2.1174 -2.3557 -2.5303
 1 1 3 7 19 14 11 32 40 32 20 6 3 3 NONPLANAR 2

NR. 442
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 10; 8 13; 9 13; 10 12; 11 14; 12 14; 13 14;
 1 0 -21 -2 166 22 -631 -90 1210 168 -1107 -130 383 24 -9
 3.0000 2.1429 1.8468 1.5430 1.2103 0.8140 0.1300 -0.1925 -1.0000 -1.1569 -1.4453 -1.9640 -2.4039 -2.5243
 1 1 4 7 13 15 23 29 26 36 26 4 4 3 NONPLANAR 2

NR. 443
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 10; 8 13; 9 14; 10 12; 11 14; 12 13; 13 14;
 1 0 -21 -2 164 28 -609 -154 1123 394 -941 -444 244 154 15
 3.0000 2.1423 1.8178 1.5674 1.3893 0.7672 -0.1274 -0.5076 -0.6917 -1.0000 -1.6270 -1.6456 -2.3237 -2.7611
 1 2 1 9 14 17 19 22 37 31 20 9 4 3 NONPLANAR 2

NR. 444
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 10; 8 13; 9 14; 10 12; 11 13; 12 14; 13 14;
 1 0 -21 -2 168 20 -661 -70 1363 106 -1433 -64 680 2 -105
 3.0000 2.1423 1.6309 1.5674 1.3454 0.7672 0.5808 -0.5076 -1.0000 -1.1497 -1.6456 -1.9226 -2.3237 -2.4848
 1 0 5 9 12 14 23 31 29 31 26 9 4 3 NONPLANAR 2

NR. 445
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 10; 8 11; 8 13; 9 13; 10 14; 11 14; 12 13; 12 14;
 1 0 -21 -2 164 24 -603 -106 1077 208 -869 -164 259 32 -24
 3.0000 2.1417 1.9950 1.5275 1.1391 0.5398 0.3195 -0.5056 -0.6234 -1.1050 -1.4468 -2.0692 -2.2316 -2.6812
 1 2 3 6 12 17 20 29 32 30 24 9 4 3 NONPLANAR 1

NR. 446
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 11; 9 14; 10 12; 10 14; 12 13; 13 14;
 1 0 -21 0 162 -6 -580 38 991 -46 -750 -24 202 18 -9
 3.0000 2.1408 1.7572 1.4585 1.2920 0.6718 0.1816 -0.3202 -0.6280 -0.8631 -1.4504 -2.0793 -2.4219 -2.7479
 0 3 3 7 14 15 22 32 33 32 18 11 4 3 NONPLANAR 1

NR. 447
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 11; 9 14; 10 12; 10 13; 12 14; 13 14;
 1 0 -21 0 162 -8 -576 60 955 -116 -663 36 163 0 -9
 3.0000 2.1394 1.8582 1.4173 1.1808 0.5988 0.2646 -0.2926 -0.5721 -0.7784 -1.5774 -2.1018 -2.4687 -2.6682
 0 3 4 5 14 15 23 35 29 27 26 8 4 3 NONPLANAR 1

NR. 448
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 6 10; 7 11; 7 12; 8 11; 8 13; 9 11; 9 14; 10 13; 10 14; 12 13; 12 14;
 1 0 -21 0 162 -8 -578 68 965 -180 -645 152 92 -24 0
 3.0000 2.1392 1.8588 1.4716 1.1356 0.4142 0.2793 0.0000 -0.4426 -1.1120 -1.6417 -1.9452 -2.4142 -2.7430
 0 3 4 6 10 19 27 25 32 33 20 9 4 3 NONPLANAR 1

NR. 449
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 13; 8 14; 9 13; 10 12; 10 14; 11 13; 12 14;
 1 0 -21 -4 166 56 -622 -292 1125 688 -857 -688 124 192 36
 3.0000 2.1358 2.0861 1.4812 1.4142 0.6622 -0.3111 -0.5720 -0.6622 -1.0000 -1.4142 -2.1358 -2.1701 -2.5141
 2 1 2 5 16 17 14 24 32 30 20 6 3 3 NONPLANAR 4

NR. 450
 1 2; 1 3; 1 4; 2 5; 2 6; 3 5; 3 7; 4 6; 4 8; 5 9; 5 10; 6 11; 6 12; 7 9; 7 11; 8 10; 8 13; 9 14; 10 13; 11 14; 12 13; 12 14;
 1 0 -21 -4 164 60 -598 -324 1014 748 -620 -652 -51 76 15
 3.0000 2.1307 2.1149 1.6180 1.3755 0.3651 -0.2541 -0.5523 -0.6180 -1.0000 -1.4424 -1.8608 -2.1565 -2.7201
 2 2 0 6 14 19 16 20 30 31 22 7 4 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 451
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -2 166 24 -635 -112 1240 262 -1176 -314 434 150 -9
 3.0000 2.1268 1.8442 1.4499 1.1971 1.1004 0.0524 -0.5010 -0.7475 -1.1392 -1.5764 -1.9307 -2.1943 -2.6817
 1 1 3 9 13 16 18 27 39 34 20 6 4 3 NONPLANAR 1

NR. 452
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -2 164 26 -605 -132 1093 306 -884 -294 229 72 -9
 3.0000 2.1264 1.9260 1.5576 1.2991 0.6038 0.0989 -0.4984 -0.6337 -1.1342 -1.4393 -1.8310 -2.3947 -2.6806
 1 2 2 7 14 21 25 34 32 22 9 4 3 NONPLANAR 1

NR. 453
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 0 164 -8 -612 68 1152 -200 -1024 240 320 -96 0
 3.0000 2.1259 1.6008 1.4142 1.4142 0.7321 0.3250 0.0000 -0.8340 -1.4142 -1.4142 -1.7754 -2.4423 -2.7321
 0 2 4 10 10 14 30 26 34 32 24 10 4 3 NONPLANAR 2

NR. 454
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 0 162 -8 -582 72 1017 -216 -837 248 260 -96 0
 3.0000 2.1249 2.0000 1.0000 1.0000 1.0000 0.4142 0.0000 -1.0000 -1.0000 -1.3633 -2.0000 -2.4142 -2.7616
 0 3 4 8 8 12 32 32 24 40 24 12 3 3 NONPLANAR 16

NR. 455
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -2 164 24 -599 -114 1041 256 -769 -216 163 28 -12
 3.0000 2.1229 1.9171 1.6805 1.2005 0.3511 0.2771 -0.4532 -0.5749 -1.1218 -1.3079 -2.1262 -2.4580 -2.5071
 1 2 3 4 16 17 19 30 26 33 26 6 4 3 NONPLANAR 2

NR. 456
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -2 168 20 -659 -74 1341 144 -1361 -172 591 92 -60
 3.0000 2.1229 1.6805 1.5518 1.2005 1.1185 0.2771 -0.5749 -0.7749 -1.1218 -1.6713 -2.1262 -2.2242 -2.4580
 1 0 5 8 14 16 17 30 38 31 22 8 3 3 NONPLANAR 2

NR. 457
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 0 164 -10 -606 86 1094 -232 -875 218 215 -42 -9
 3.0000 2.1220 1.6991 1.4670 1.2678 0.6677 0.3557 -0.1375 -0.5439 -1.2614 -1.5189 -2.0620 -2.3989 -2.6567
 0 2 5 7 12 16 25 31 31 32 24 11 4 3 NONPLANAR 1

NR. 458
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -8 168 120 -622 -648 966 1456 -168 -1056 -571 -120 -9
 3.0000 2.1149 2.1149 2.1149 1.3028 -0.2541 -0.2541 -0.2541 -1.0000 -1.0000 -1.8608 -1.8608 -1.8608 -2.3028
 4 0 0 3 12 21 18 12 24 36 24 6 3 3 NONPLANAR 12

NR. 459
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -4 164 60 -602 -312 1046 668 -732 -524 129 112 15
 3.0000 2.1149 2.1149 1.7913 1.0000 0.6180 -0.2541 -0.2541 -1.0000 -1.0000 -1.8618 -1.8608 -1.8608 -2.7913
 2 2 0 8 8 20 20 20 36 34 20 6 4 3 NONPLANAR 8

NR. 460
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -4 168 52 -650 -248 1266 540 -1160 -556 369 216 27
 3.0000 2.1149 2.1149 1.3028 1.3028 1.0000 -0.2541 -0.2541 -1.0000 -1.0000 -1.8608 -1.8608 -2.3028 -2.3028
 2 0 4 6 12 17 16 22 40 42 16 0 3 3 NONPLANAR 8

NR. 461
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 -2 164 26 -607 -124 1103 252 -904 -184 267 16 -12
 3.0000 2.1149 1.9217 1.6751 1.1459 0.5392 0.2161 -0.2541 -1.0000 -1.0000 -1.5207 -1.8608 -2.2143 -2.7631
 1 2 2 8 10 20 23 21 34 33 22 9 4 3 NONPLANAR 2

NR. 462
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 0 160 0 -566 0 958 0 -704 -0 181 0 -9
 3.0000 2.1149 1.8608 1.6180 1.0000 0.6180 0.2541 -0.2541 -0.6180 -1.0000 -1.6180 -1.8608 -2.1149 -3.0000
 0 4 0 13 0 36 0 56 0 66 0 16 4 3 NONPLANAR 8

NR. 463
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 0 164 -12 -606 124 1074 -416 -740 460 -3 -28 3
 3.0000 2.1149 1.8608 1.4383 1.0000 0.6180 0.2541 0.1386 -0.2541 -1.6180 -1.8202 -1.8608 -2.1149 -2.7566
 0 2 6 7 4 25 30 17 36 39 16 10 4 3 NONPLANAR 4

NR. 464
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 0 164 -12 -602 108 1054 -288 -772 204 185 -12 -9
 3.0000 2.1149 1.8608 1.3028 1.0000 1.0000 0.2541 -0.2541 -0.5820 -1.0000 -1.8608 -2.1149 -2.3028 -2.6180
 0 2 6 5 12 17 22 37 30 26 32 4 3 3 NONPLANAR 4

NR. 465
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 1 0 -21 0 160 -0 -558 -32 934 176 -720 -256 189 112 15
 3.0000 2.1149 1.7913 1.6180 1.0000 1.0000 -0.2541 -0.3820 -0.6180 -1.0000 -1.0000 -1.8608 -2.6180 -2.7913
 0 4 0 9 16 12 24 20 52 26 20 10 3 3 NONPLANAR 8

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 466
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 11 6 12 7 9 7 13 8 11 8 14 9 14 10 12 10 13 11 13 12 14
 1 0 -21 -2 168 18 -655 -48 1299 28 -1224 36 452 -48 -36
 3.0000 2.1149 1.6751 1.6751 1.3028 0.5392 0.5392 -0.2541 -1.0000 -1.0000 -1.8608 -2.2143 -2.2143 -2.3028
 1 0 6 6 12 21 19 24 36 33 24 9 3 3 NONPLANAR 6

NR. 467
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 6 4 8 5 9 6 10 7 11 7 12 8 11 8 13 9 13 9 14 10 12 10 14 11 14 12 13
 1 0 -21 0 164 -8 -610 64 1126 -144 -956 64 305 24 -9
 3.0000 2.1149 1.6180 1.4383 1.3028 1.0000 0.1386 -0.2541 -0.6180 -1.0000 -1.8202 -1.8608 -2.3028 -2.7566
 0 2 4 9 12 17 20 30 42 31 20 6 4 3 NONPLANAR 4

NR. 468
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 10 6 11 7 10 7 12 8 13 9 11 9 12 10 14 11 13 12 14 13 14
 1 0 -21 0 164 -10 -608 94 1104 -292 -871 332 179 -100 12
 3.0000 2.1102 1.7573 1.4750 1.2085 0.5218 0.2830 0.2372 -0.6553 -1.2761 -1.7700 -1.8539 -2.2981 -2.7396
 0 2 5 8 8 20 28 23 35 34 22 11 4 3 NONPLANAR 1

NR. 469
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 10 6 11 7 12 7 13 8 14 9 10 9 12 10 13 11 13 11 14 12 14
 1 0 -21 0 164 -10 -604 82 1072 -188 -827 96 251 -16 -24
 3.0000 2.1037 1.6933 1.4582 1.3557 0.5594 0.4773 -0.3761 -0.6584 -0.7376 -1.8040 -2.0953 -2.3188 -2.6573
 0 2 5 6 14 18 18 34 38 24 28 10 4 3 NONPLANAR 2

NR. 470
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 10 6 11 7 10 7 12 8 13 9 11 9 14 10 14 11 12 12 13 13 14
 1 0 -21 0 166 -14 -632 134 1199 -422 -1014 484 238 -134 15
 3.0000 2.0905 1.7057 1.4498 1.0000 1.0000 0.2607 0.1944 -0.6607 -1.3576 -1.7145 -2.0855 -2.3354 -2.5476
 0 1 7 7 10 17 27 32 28 35 30 6 3 3 NONPLANAR 2

NR. 471
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 10 6 11 7 12 7 13 8 14 9 10 9 11 10 12 11 13 12 14 13 14
 1 0 -21 0 162 -4 -586 20 1053 -20 -917 -20 344 24 -36
 3.0000 2.0861 1.8742 1.4142 1.0000 1.0000 0.3375 -0.5720 -0.6329 -1.0000 -1.4142 -1.7941 -2.5141 -2.7846
 0 3 2 10 12 12 28 26 40 32 20 14 3 3 NONPLANAR 4

NR. 472
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 8 6 10 6 11 7 12 7 13 8 14 9 10 9 12 10 13 11 12 11 14 13 14
 1 0 -21 0 166 -12 -634 104 1225 -284 -1125 272 392 -48 -36
 3.0000 2.0861 1.4812 1.4142 1.4142 1.0000 0.4142 -0.3111 -0.5720 -1.4142 -1.4142 -2.1701 -2.4142 -2.5141
 0 1 6 8 14 13 22 38 32 34 24 8 3 3 NONPLANAR 4

NR. 473
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 9 7 11 8 12 9 13 10 12 10 13 11 14 12 14 13 14
 1 0 -21 0 164 -8 -606 56 1094 -96 -900 8 301 8 -33
 3.0000 2.0328 1.6180 1.6180 1.4050 0.6180 0.4142 -0.6180 -0.6180 -0.6951 -1.6130 -2.0848 -2.4142 -2.6579
 0 2 4 7 16 16 20 34 36 24 28 10 4 5 NONPLANAR 4

NR. 474
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 9 7 11 8 12 9 13 10 12 10 14 11 14 12 13 13 14
 1 0 -21 0 164 -8 -608 64 1104 -160 -888 152 208 -48 0
 3.0000 2.0312 1.6751 1.5756 1.4142 0.5392 0.2496 0.0000 -0.6522 -1.2884 -1.4142 -2.1732 -2.2143 -2.7425
 0 2 4 8 12 20 24 25 34 38 18 11 4 3 NONPLANAR 2

NR. 475
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 9 7 12 8 12 9 13 10 11 10 13 11 14 12 14 13 14
 1 0 -21 0 164 -12 -598 104 1010 -264 -644 172 109 -40 3
 3.0000 2.0121 1.8608 1.6180 1.1202 0.4142 0.2541 0.1140 -0.6180 -0.8011 -1.9379 -2.1149 -2.4142 -2.5073
 0 2 6 3 14 22 20 33 30 26 30 6 4 3 NONPLANAR 2

NR. 476
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 9 7 12 8 12 9 13 10 11 10 14 11 13 12 14 13 14
 1 0 -21 0 164 -10 -604 86 1068 -232 -791 200 159 -36 0
 3.0000 2.0066 1.8636 1.5480 1.1716 0.6201 0.2182 0.0000 -0.5333 -1.1056 -1.7713 -1.9740 -2.3847 -2.6592
 0 2 5 6 12 20 25 27 33 32 24 8 4 3 NONPLANAR 1

NR. 477
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 9 7 12 8 12 9 13 10 13 10 14 11 13 11 14 12 14
 1 0 -21 0 164 -8 -608 64 1104 -156 -896 124 252 -32 -12
 3.0000 2.0048 1.7574 1.6064 1.2683 0.6315 0.3387 -0.1764 -0.6710 -1.0459 -1.6385 -2.0673 -2.2623 -2.7456
 0 2 4 8 12 20 23 27 35 34 22 10 4 3 NONPLANAR 1

NR. 478
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 9 7 12 8 13 9 13 10 11 10 12 11 14 12 14 13 14
 1 0 -21 0 162 -12 -566 108 849 -292 -357 228 -36 0 0
 3.0000 2.0000 2.0000 1.7321 0.4142 0.4142 0.4142 0.0000 0.0000 -1.0000 -1.7321 -2.4142 -2.4142 -2.4142
 0 3 6 0 12 24 26 30 24 24 24 6 4 3 PLANAR 12

NR. 479
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 9 7 12 8 13 9 13 10 11 10 14 11 12 12 14 13 14
 1 0 -21 0 162 -8 -574 60 933 -128 -605 100 104 -24 0
 3.0000 2.0000 1.9630 1.6378 1.0000 0.4142 0.2679 0.0000 -0.5459 -1.0000 -1.4367 -2.2265 -2.4142 -2.6595
 0 3 4 4 14 18 26 31 26 30 22 9 4 3 NONPLANAR 2

NR. 480
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 11 7 12 8 13 9 11 9 14 10 12 10 14 12 13 13 14
 1 0 -21 0 164 -8 -608 60 1116 -136 -952 96 288 0 0
 3.0000 2.0000 1.8662 1.4142 1.1701 1.0000 0.0000 0.0000 -0.6889 -1.2108 -1.4142 -2.0000 -2.4812 -2.6554
 0 2 4 8 14 14 26 31 32 36 20 9 3 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
LINE 2: EDGES;
LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
LINE 4: EIGENVALUES;
LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 481
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 12; 7, 13; 8, 12; 9, 11; 9, 13; 10, 12; 10, 14; 11, 14; 13, 14;
1 0 -21 0 164 -8 -608 64 1104 -160 -880 128 192 0 0
3.0000 2.0000 1.8136 1.4142 1.4142 0.7321 0.0000 0.0000 -0.4707 -1.4142 -1.4142 -2.0000 -2.3429 -2.7321
0 2 4 8 12 20 24 24 36 34 28 6 4 3 NONPLANAR 8

NR. 482
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 12; 7, 13; 8, 12; 9, 11; 9, 14; 10, 12; 10, 14; 11, 13; 13, 14;
1 0 -21 0 164 -8 -604 48 1084 -32 -912 -112 304 96 0
3.0000 2.0000 1.8136 1.4142 1.1701 1.1701 0.0000 -0.4707 -0.6889 -0.6889 -1.4142 -2.3429 -2.4812 -2.4812
0 2 4 6 20 12 16 44 28 31 28 8 3 3 NONPLANAR 8

NR. 483
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 11; 7, 12; 8, 12; 9, 10; 9, 13; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 0 164 -6 -612 38 1152 -60 -1051 -8 403 36 -36
3.0000 2.0000 1.7573 1.5231 1.2085 1.0000 0.2830 -0.5149 -0.6553 -1.0000 -1.5669 -1.8539 -2.4413 -2.7396
0 2 3 10 14 14 24 30 39 30 22 11 4 3 NONPLANAR 1

NR. 484
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 9; 7, 12; 8, 13; 9, 14; 10, 11; 10, 12; 11, 14; 12, 13; 13, 14;
1 0 -21 0 166 -16 -626 160 1125 -528 -729 576 -108 0 0
3.0000 2.0000 1.7321 1.7321 1.0000 0.4142 0.4142 0.0000 0.0000 -1.7321 -1.7321 -2.0000 -2.4142 -2.4142
0 1 8 4 8 27 28 18 36 36 16 12 4 3 NONPLANAR 8

NR. 485
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 11; 7, 12; 8, 13; 9, 10; 9, 14; 10, 12; 11, 14; 12, 13; 13, 14;
1 0 -21 0 166 -12 -634 108 1221 -324 -1105 372 372 -144 0
3.0000 2.0000 1.7321 1.5616 1.0000 1.0000 0.4142 0.0000 -1.0000 -1.0000 -1.7321 -2.0000 -2.4142 -2.5616
0 1 6 8 12 15 28 35 26 30 32 6 3 3 NONPLANAR 4

NR. 486
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 12; 7, 13; 8, 12; 9, 13; 9, 14; 10, 12; 10, 14; 11, 13; 11, 14;
1 0 -21 0 164 -4 -616 16 1188 8 -1120 -96 403 96 0
3.0000 2.0000 1.6412 1.4142 1.4142 1.1701 0.0000 -0.2763 -0.6889 -1.4142 -1.4142 -1.5892 -2.4812 -2.7757
0 2 2 12 14 14 24 23 48 31 20 10 3 3 NONPLANAR 4

NR. 487
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 11; 6, 12; 7, 11; 7, 13; 8, 10; 8, 11; 9, 12; 9, 13; 10, 14; 12, 14; 13, 14;
1 0 -21 0 164 0 -632 -0 1296 -0 -1360 0 576 0 0
3.0000 2.0000 1.4142 1.4142 1.4142 1.4142 0.0000 0.0000 -1.4142 -1.4142 -1.4142 -1.4142 -2.0000 -3.0000
0 2 0 20 0 32 0 60 0 74 0 12 4 3 NONPLANAR 16

NR. 488
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 11; 7, 12; 8, 12; 9, 13; 9, 14; 10, 13; 10, 14; 11, 13; 12, 14;
1 0 -21 0 164 -6 -610 34 1130 -20 -995 -90 344 78 -9
3.0000 1.9862 1.7108 1.5457 1.3224 1.0000 0.0849 -0.4099 -0.6955 -0.9089 -1.4606 -2.1007 -2.3319 -2.7425
0 2 3 9 16 16 18 32 40 34 18 11 3 3 NONPLANAR 2

NR. 489
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 11; 7, 12; 8, 13; 9, 10; 9, 12; 10, 14; 11, 13; 12, 14; 13, 14;
1 0 -21 0 162 -4 -584 20 1027 -28 -819 16 227 -12 -9
3.0000 1.9841 1.9313 1.5415 1.2115 0.6028 0.2594 -0.1853 -0.7366 -1.1037 -1.4323 -1.7756 -2.5228 -2.7741
0 3 2 9 12 16 30 20 40 30 18 13 4 3 NONPLANAR 2

NR. 490
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 9; 7, 12; 8, 13; 9, 14; 10, 11; 10, 14; 11, 12; 12, 13; 13, 14;
1 0 -21 0 166 -14 -628 130 1151 -386 -858 372 114 -46 3
3.0000 1.9805 1.7389 1.6251 1.2124 0.6576 0.2052 0.0898 -0.4121 -1.2639 -1.9070 -2.1822 -2.2320 -2.5125
0 1 7 5 12 23 22 28 35 31 24 9 3 3 NONPLANAR 2

NR. 491
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 11; 7, 12; 8, 13; 9, 10; 9, 12; 10, 14; 11, 14; 12, 13; 13, 14;
1 0 -21 0 166 -10 -640 94 1267 -310 -1202 424 406 -206 15
3.0000 1.9805 1.6251 1.5982 1.3349 0.6576 0.5048 0.0898 -1.0000 -1.2639 -1.6890 -1.9070 -2.1922 -2.7489
0 1 5 11 8 19 30 25 31 38 24 9 4 3 NONPLANAR 2

NR. 492
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 11; 7, 12; 8, 13; 9, 12; 9, 14; 10, 12; 10, 13; 11, 14; 13, 14;
1 0 -21 0 166 -12 -632 104 1199 -284 -1043 260 343 -64 -33
3.0000 1.9783 1.7397 1.4540 1.3738 0.6391 0.5945 -0.2742 -0.6245 -1.0996 -1.7507 -2.1462 -2.3342 -2.5500
0 1 6 7 14 17 22 36 32 27 28 10 3 3 NONPLANAR 2

NR. 493
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 9; 7, 12; 8, 13; 9, 14; 10, 13; 10, 14; 11, 12; 11, 13; 12, 14;
1 0 -21 0 162 -6 -576 30 959 6 -706 -80 186 30 -9
3.0000 1.9752 1.9567 1.5460 1.2024 0.6426 0.1629 -0.4314 -0.6528 -0.7495 -1.2827 -2.2755 -2.4368 -2.6570
0 3 3 5 18 14 21 37 28 30 22 10 3 3 NONPLANAR 2

NR. 494
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 11; 7, 12; 8, 13; 9, 12; 9, 13; 10, 13; 10, 14; 11, 14; 12, 14;
1 0 -21 0 162 -4 -582 16 1005 12 -765 -64 188 16 -12
3.0000 1.9596 1.9319 1.4506 1.4142 0.5176 0.2498 -0.4101 -0.5176 -1.0000 -1.4142 -1.9319 -2.4753 -2.7741
0 3 2 8 14 18 24 22 42 29 22 9 4 3 NONPLANAR 2

NR. 495
1, 2; 1, 3; 1, 4; 2, 5; 2, 6; 3, 5; 3, 7; 4, 8; 4, 9; 5, 10; 6, 8; 6, 11; 7, 9; 7, 12; 8, 13; 9, 14; 10, 13; 10, 14; 11, 12; 11, 14; 12, 13;
1 0 -21 0 166 -10 -636 82 1235 -210 -1134 172 378 -6 -9
3.0000 1.9567 1.6582 1.5460 1.2024 1.1651 0.1629 -0.1576 -0.6528 -1.2827 -1.5593 -2.1064 -2.2755 -2.6570
0 1 5 9 14 17 21 31 40 32 22 8 3 3 NONPLANAR 2

CONNECTED CUBIC GRAPHS WITH 14 VERTICES

LINE 1: GRAPH IDENTIFICATION NUMBER;
 LINE 2: EDGES;
 LINE 3: COEFFICIENTS OF THE CHARACTERISTIC POLYNOMIAL;
 LINE 4: EIGENVALUES;
 LINE 5: NUMBERS OF CIRCUITS OF LENGTH 3,4,...,14, DIAMETER, CONNECTIVITY, PLANARITY, ORDER OF THE AUTOMORPHISM GROUP.

NR. 496
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 11 7 12 8 13 9 12 9 14 10 13 10 14 11 14 12 13
 1 0 -21 0 166 -8 -642 64 1293 -172 -1301 176 536 -48 -36
 3.0000 1.9537 1.6220 1.4142 1.4142 1.1233 0.3384 -0.2399 -0.8787 -1.4142 -1.4142 -1.8574 -2.3213 -2.7400
 0 1 4 12 12 15 25 29 40 34 20 10 4 3 NONPLANAR 1

NR. 497
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 11 6 12 7 11 7 13 8 10 8 12 9 11 9 13 10 14 12 14 13 14
 1 0 -21 0 162 0 -598 0 1113 0 -981 -0 328 0 -36
 3.0000 1.9319 1.9319 1.4142 1.4142 0.5176 0.5176 -0.5176 -0.5176 -1.4142 -1.4142 -1.9319 -1.9319 -3.0000
 0 3 0 16 0 36 0 57 0 67 0 18 4 3 NONPLANAR 6

NR. 498
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 12 7 13 8 12 9 11 9 13 10 13 10 14 11 14 12 14
 1 0 -21 0 166 -12 -634 112 1209 -348 -1025 384 244 -80 -12
 3.0000 1.9319 1.8452 1.4142 1.3472 0.6338 0.5176 -0.1178 -0.5176 -1.4142 -1.8054 -1.9319 -2.2446 -2.6584
 0 1 6 8 10 21 26 25 36 34 24 10 4 3 NONPLANAR 2

NR. 499
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 11 6 12 7 11 7 13 8 10 8 12 9 11 9 14 10 14 12 13 13 14
 1 0 -21 0 166 -8 -642 64 1293 -168 -1313 160 584 -32 -84
 3.0000 1.9319 1.6855 1.4142 1.4142 1.0000 0.5176 -0.5176 -0.6651 -1.4142 -1.4142 -1.9319 -2.2713 -2.7491
 0 1 4 12 12 15 24 32 38 32 22 13 3 3 NONPLANAR 2

NR. 500
 1 2 3 1 3 1 4 2 5 2 6 3 5 3 7 4 8 4 9 5 10 6 8 6 11 7 12 7 13 8 12 9 11 9 14 10 13 10 14 11 13 12 14
 1 0 -21 0 166 -12 -632 104 1199 -284 -1039 252 323 -48 -9
 3.0000 1.9313 1.8462 1.4236 1.2115 1.0000 0.2594 -0.1128 -0.6757 -1.1037 -1.7756 -2.0748 -2.4065 -2.5228
 0 1 6 7 14 17 22 35 32 32 26 9 3 3 NONPLANAR 2

NR. 501
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 9 6 8 6 11 7 12 8 13 9 14 10 12 10 13 11 12 11 14 13 14
 1 0 -21 0 168 -12 -668 112 1404 -376 -1488 544 624 -288 0
 3.0000 1.8662 1.6751 1.4142 1.4142 1.0000 0.5392 0.0000 -1.2108 -1.4142 -1.4142 -2.0000 -2.2143 -2.6554
 0 0 6 12 10 15 30 31 30 37 30 5 3 3 NONPLANAR 4

NR. 502
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 9 6 8 6 11 7 12 8 13 9 14 10 11 10 12 11 14 12 13 13 14
 1 0 -21 0 168 -14 -662 130 1346 -416 -1311 530 452 -218 15
 3.0000 1.8640 1.7108 1.5457 1.2575 1.0000 0.3823 0.0849 -0.9089 -1.3261 -1.6534 -2.1007 -2.5319 -2.4843
 0 0 7 9 12 17 26 33 30 36 28 7 3 3 NONPLANAR 2

NR. 503
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 9 6 8 6 11 7 12 8 13 9 14 10 11 10 13 11 14 12 13 12 14
 1 0 -21 0 168 -16 -658 156 1298 -520 -1120 648 201 -180 27
 3.0000 1.8608 1.7321 1.6180 1.3023 0.6180 0.4142 0.2541 -0.6180 -1.6180 -1.7321 -2.1149 -2.3028 -2.4142
 0 0 8 7 10 23 26 25 34 37 24 10 4 3 NONPLANAR 4

NR. 504
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 9 6 11 6 12 7 13 8 10 9 11 9 14 10 12 11 13 12 14 13 14
 1 0 -21 0 168 -16 -656 152 1276 -480 -1056 528 176 -96 0
 3.0000 1.8136 1.6751 1.6751 1.4142 0.5392 0.5392 0.0000 -0.4707 -1.4142 -2.0000 -2.2143 -2.2143 -2.3429
 0 0 8 6 12 25 20 26 40 33 24 10 3 3 NONPLANAR 8

NR. 505
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 9 6 11 6 12 7 13 8 10 9 11 9 14 10 12 11 14 12 13 13 14
 1 0 -21 0 168 -12 -664 100 1372 -272 -1432 272 656 -64 -96
 3.0000 1.8136 1.6751 1.4142 1.4142 1.1701 0.5392 -0.4707 -0.6889 -1.4142 -1.4142 -2.2143 -2.3429 -2.4812
 0 0 6 10 16 13 20 41 36 29 24 12 3 3 NONPLANAR 4

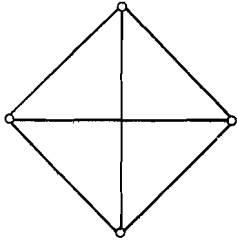
NR. 506
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 9 6 11 6 12 7 13 8 11 8 14 9 14 10 11 10 13 12 13 12 14
 1 0 -21 0 168 -8 -676 64 1488 -192 -1776 256 1024 -128 -192
 3.0000 1.8136 1.4142 1.4142 1.4142 1.4142 0.7321 -0.4707 -1.4142 -1.4142 -1.4142 -1.4142 -2.3429 -2.7321
 0 0 4 16 12 9 28 36 40 28 24 12 3 3 NONPLANAR 8

NR. 507
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 11 6 9 6 12 7 13 8 10 8 12 9 13 10 11 11 14 12 14 13 14
 1 0 -21 0 168 -12 -662 96 1350 -232 -1368 156 621 0 -81
 3.0000 1.7321 1.6180 1.6130 1.3023 1.3028 0.4142 -0.6180 -0.6180 -1.0000 -1.7321 -2.3028 -2.3028 -2.4142
 0 0 6 9 18 15 14 42 42 25 24 12 4 3 NONPLANAR 12

NR. 508
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 7 5 11 6 9 6 12 7 13 8 10 8 12 9 13 10 14 11 12 11 14 13 14
 1 0 -21 0 168 -14 -658 122 1302 -336 -1183 294 392 -70 3
 3.0000 1.7108 1.7108 1.5457 1.5457 1.0000 0.0849 0.0849 -0.9089 -0.9089 -2.1007 -2.1007 -2.3319 -2.3319
 0 0 7 7 16 21 14 35 42 28 28 7 3 3 NONPLANAR 14

NR. 509
 1 2 3 1 3 1 4 2 5 2 6 3 7 3 8 4 9 4 10 5 11 5 12 6 13 6 14 7 11 7 13 8 12 8 14 9 11 9 14 10 12 10 13
 1 0 -21 0 168 0 -700 0 1680 0 -2352 -0 1792 0 -576
 3.0000 1.4142 1.4142 1.4142 1.4142 1.4142 1.4142 -1.4142 -1.4142 -1.4142 -1.4142 -1.4142 -1.4142 -3.0000
 0 0 0 28 0 21 0 84 0 56 0 24 3 3 NONPLANAR 336

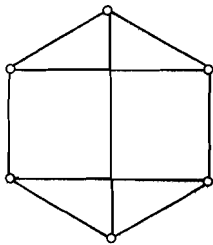
Cubic graphs with 4 vertices



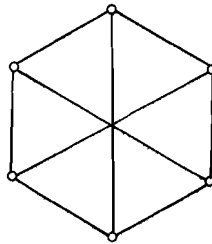
1



Cubic graphs with 6 vertices



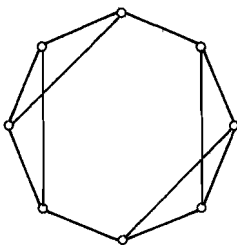
1



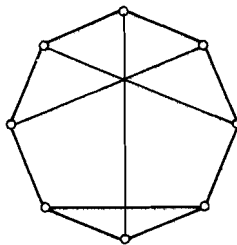
2



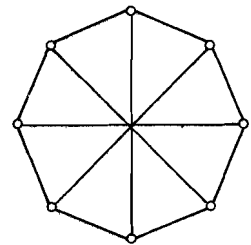
Cubic graphs with 8 vertices



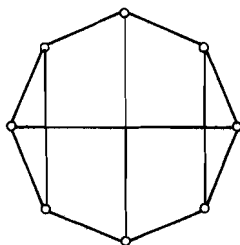
1



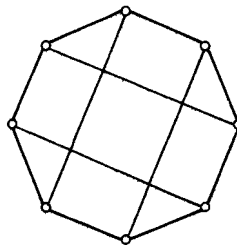
3



5

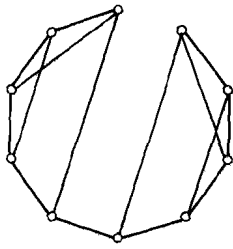


2

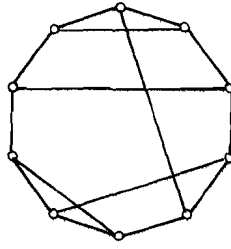


4

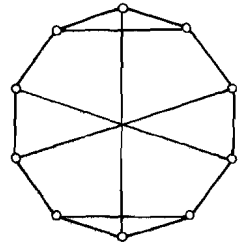
Cubic graphs with 10 vertices



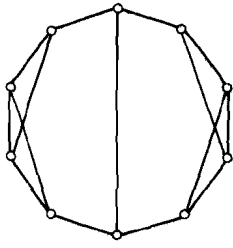
1



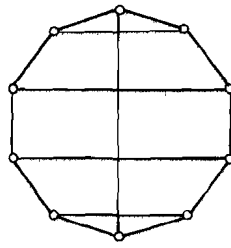
6



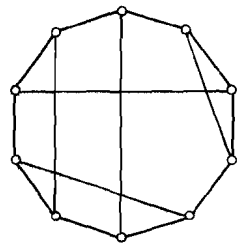
11



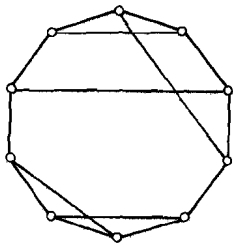
2



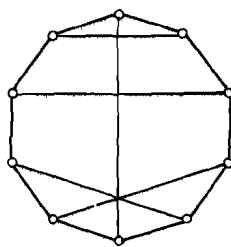
7



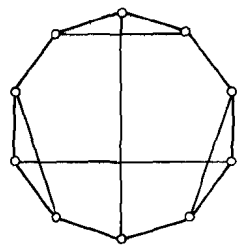
12



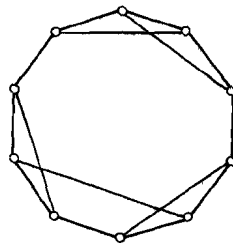
3



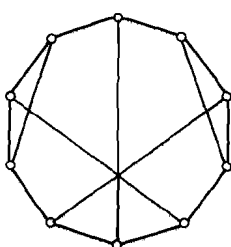
8



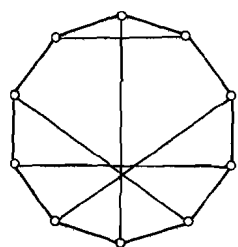
13



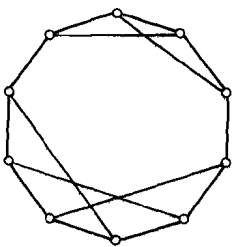
4



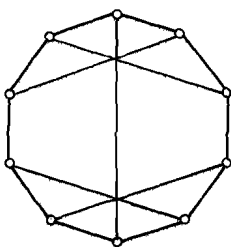
9



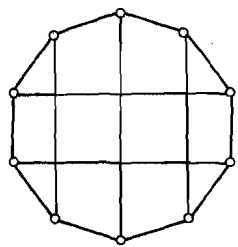
14



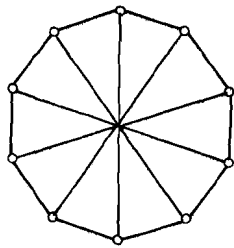
5



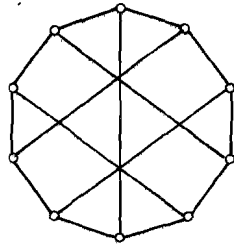
10



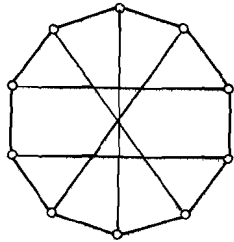
15



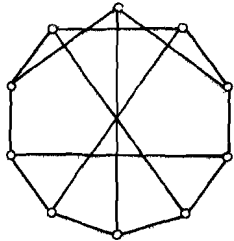
16



18

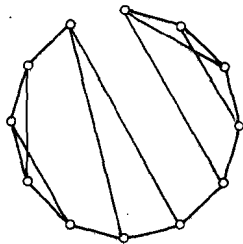


17

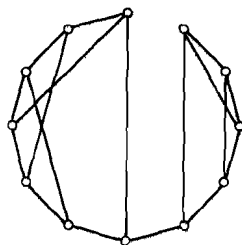


19

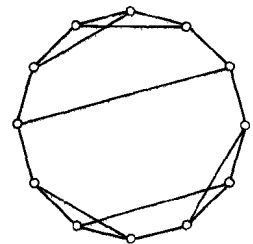
Cubic graphs with 12 vertices



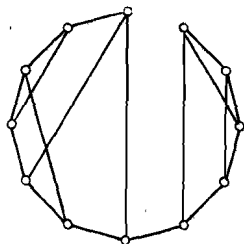
1



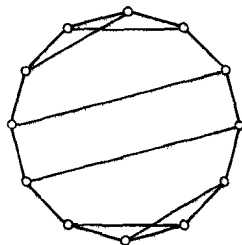
4



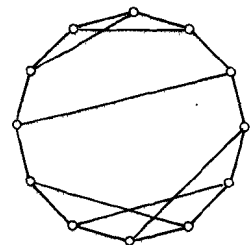
7



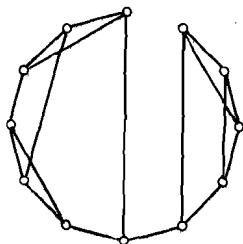
2



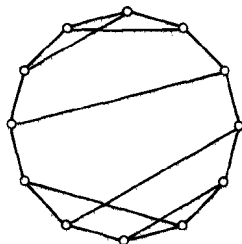
5



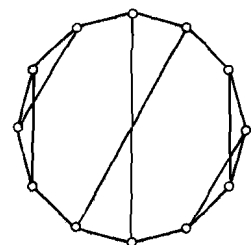
8



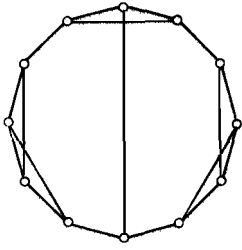
3



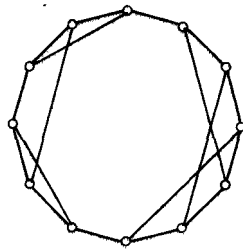
6



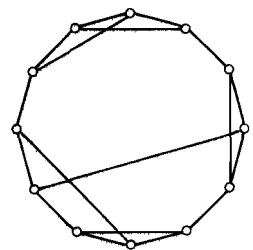
9



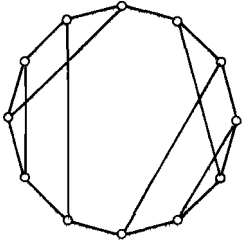
10



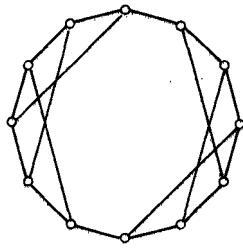
15



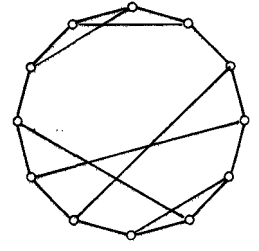
20



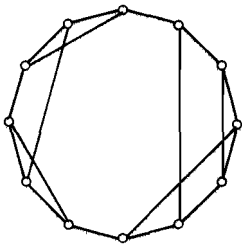
11



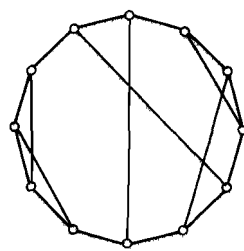
16



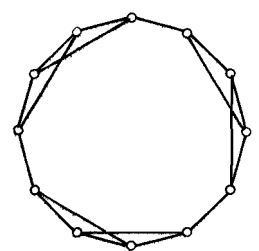
21



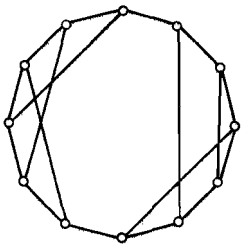
12



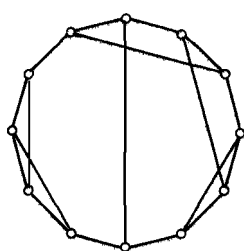
17



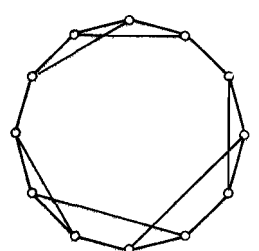
22



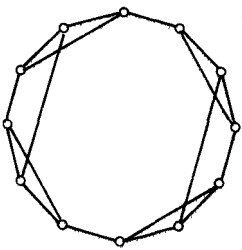
13



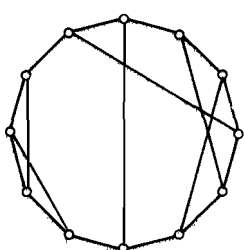
18



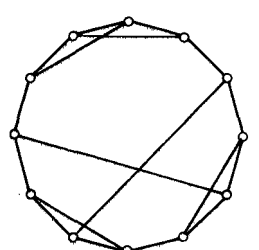
23



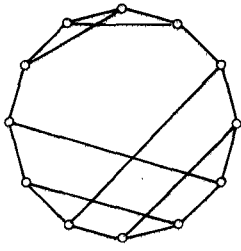
14



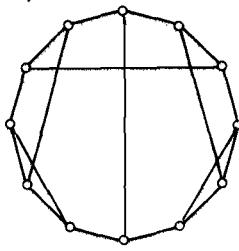
19



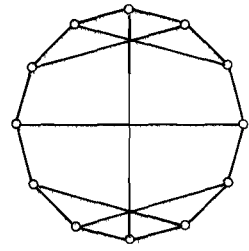
24



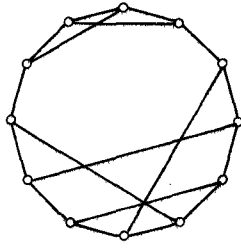
25



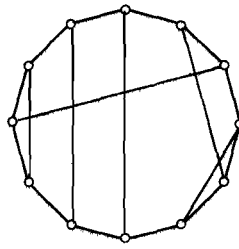
30



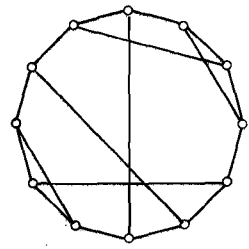
35



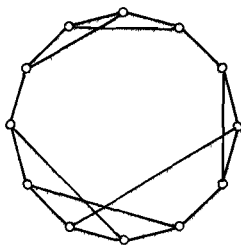
26



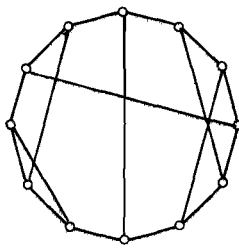
31



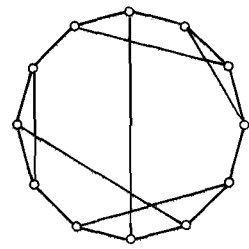
36



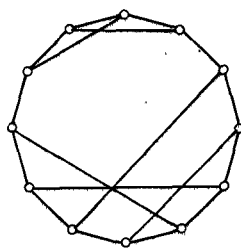
27



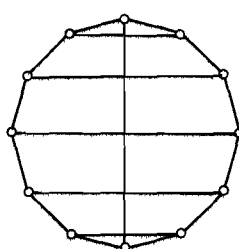
32



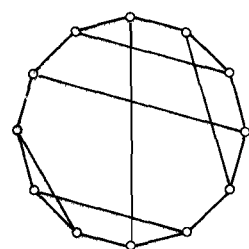
37



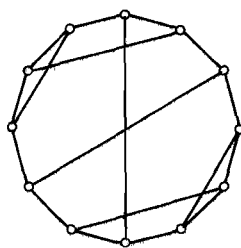
28



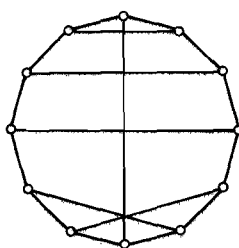
33



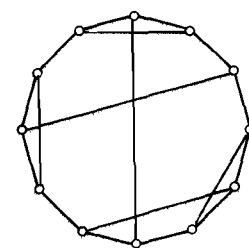
38



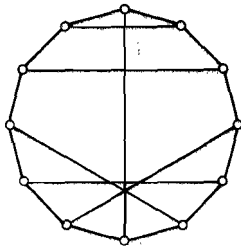
29



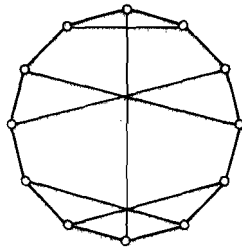
34



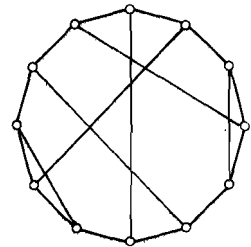
39



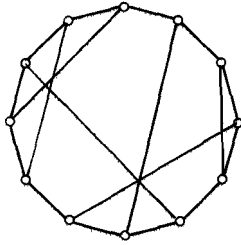
40



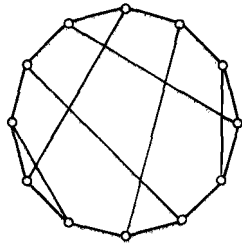
45



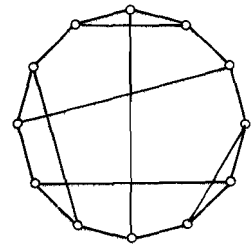
50



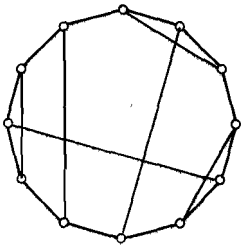
41



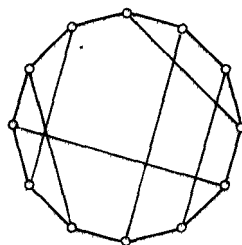
46



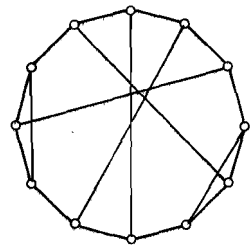
51



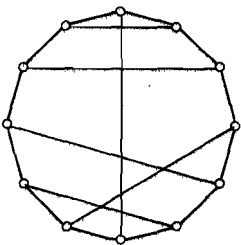
42



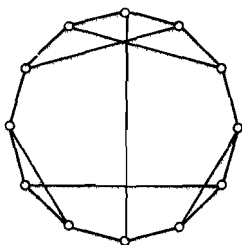
47



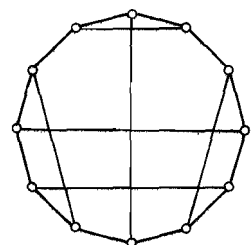
52



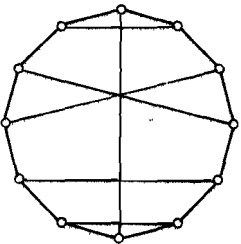
43



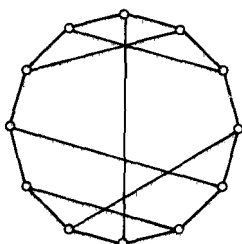
48



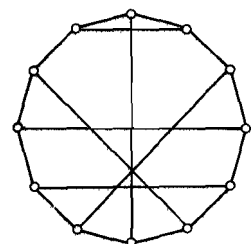
53



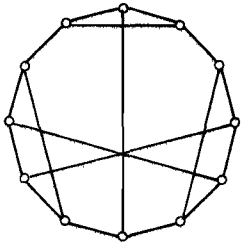
44



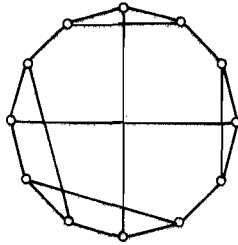
49



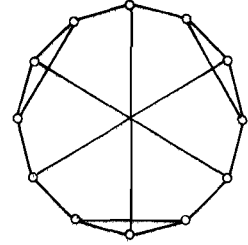
54



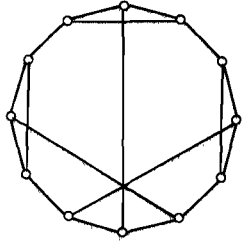
55



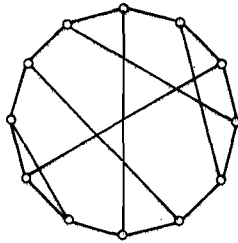
60



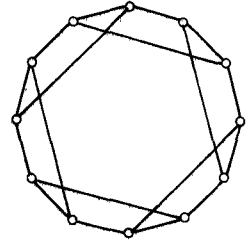
65



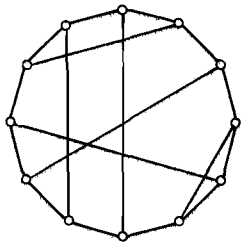
56



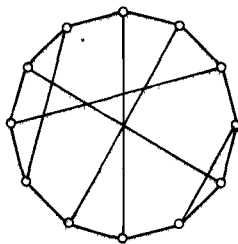
61



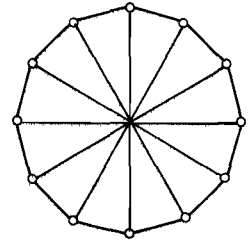
66



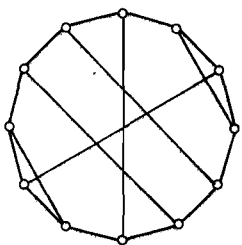
57



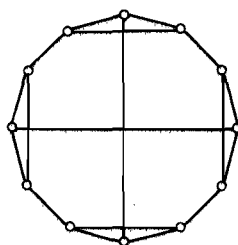
62



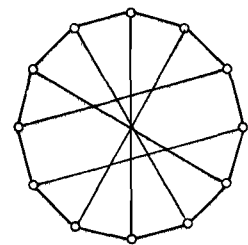
67



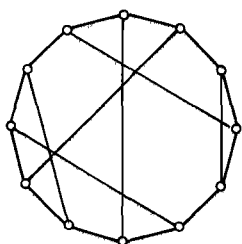
58



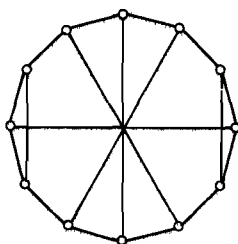
63



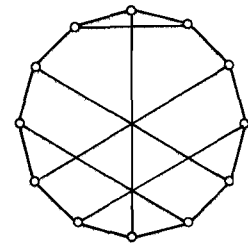
68



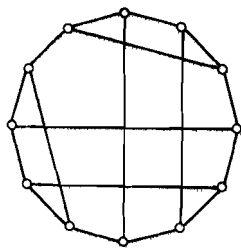
59



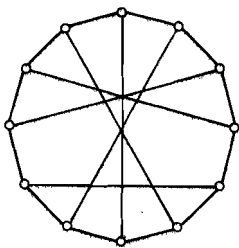
64



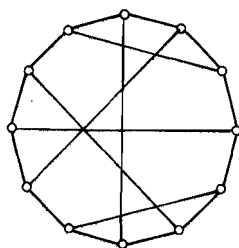
69



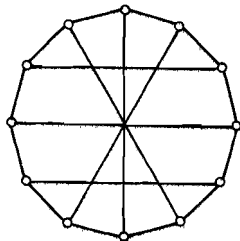
70



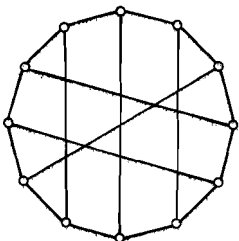
75



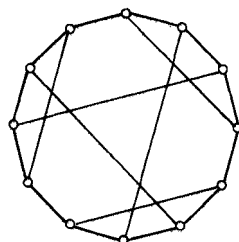
80



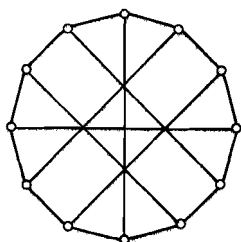
71



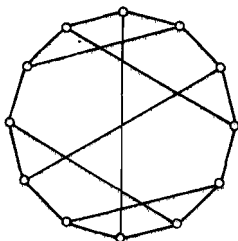
76



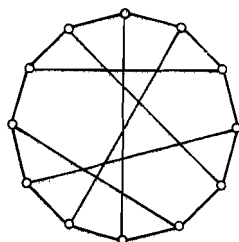
81



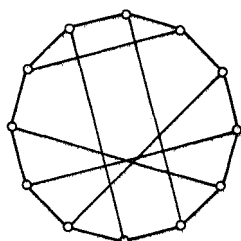
72



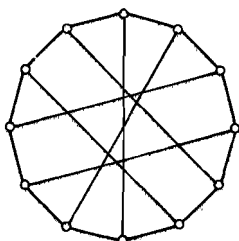
77



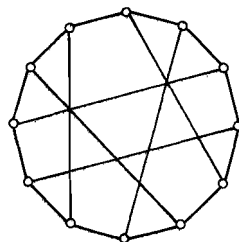
82



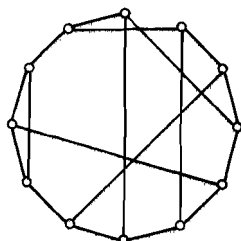
73



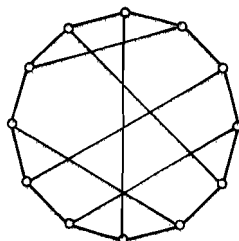
78



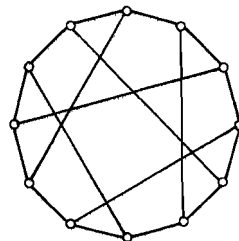
83



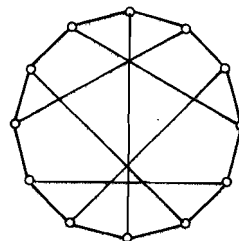
74



79



84



85

NI-ORDER: LEXICOGRAPHICAL ORDER OF THE CONNECTED CUBIC GRAPHS WITH 10 VERTICES ACCORDING TO THE EIGENVALUES IN NON-INCREASING ORDER
NO-ORDER: LEXICOGRAPHICAL ORDER OF THE CONNECTED CUBIC GRAPHS WITH 10 VERTICES ACCORDING TO THE EIGENVALUES IN NON-DECREASING ORDER

NI-ORDER: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
NO-ORDER: 11 18 12 17 3 14 8 5 16 1 13 4 19 9 6 2 7 10 15

NI-ORDER: 10 16 5 12 8 15 17 7 14 18 1 3 11 6 19 9 4 2 13
NO-ORDER: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

NI-ORDER: LEXICOGRAPHICAL ORDER OF THE CONNECTED CUBIC GRAPHS WITH 12 VERTICES ACCORDING TO THE EIGENVALUES IN NON-INCREASING ORDER
NO-ORDER: LEXICOGRAPHICAL ORDER OF THE CONNECTED CUBIC GRAPHS WITH 12 VERTICES ACCORDING TO THE EIGENVALUES IN NON-DECREASING ORDER

NI-ORDER: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
NO-ORDER: 67 40 61 18 58 70 81 6 35 79 47 63 9 84 8 1 75 38 36 69 59 83 57 82 7 55 30 41 46 71

NI-ORDER: 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
NO-ORDER: 43 23 20 39 29 68 44 13 65 27 10 72 45 64 11 80 2 15 14 77 56 42 24 66 12 78 26 62 48 37

NI-ORDER: 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85
NO-ORDER: 60 49 85 21 76 3 16 19 28 50 17 52 4 73 31 22 33 25 34 51 5 54 32 53 74

NI-ORDER: 16 47 66 73 81 8 25 15 13 41 45 55 38 49 48 67 71 4 68 33 64 76 32 53 78 57 40 69 35 27
NO-ORDER: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

NI-ORDER: 75 83 77 79 9 19 60 18 34 2 28 52 31 37 43 29 11 59 62 70 80 72 84 82 26 51 23 5 21 61
NO-ORDER: 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

NI-ORDER: 3 58 12 44 39 54 1 36 20 6 30 42 74 85 17 65 50 56 10 46 7 24 22 14 63
NO-ORDER: 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85

NI-ORDER: LEXICOGRAPHICAL ORDER OF THE CONNECTED CUBIC GRAPHS WITH 14 VERTICES ACCORDING TO THE EIGENVALUES IN NON-INCREASING ORDER
NO-ORDER: LEXICOGRAPHICAL ORDER OF THE CONNECTED CUBIC GRAPHS WITH 14 VERTICES ACCORDING TO THE EIGENVALUES IN NON-DECREASING ORDER

NI-ORDER: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
NO-ORDER: 438 509 279 508 150 478 441 213 477 28 271 144 505 149 141 95 361 337 152 173 400 405 456 429 454 54 423 137 175 263

NI-ORDER: 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
NO-ORDER: 376 352 14 304 490 433 486 17 482 16 1 163 453 282 264 278 53 418 316 497 448 457 15 428 247 284 368 502 40 332

NI-ORDER: 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90
NO-ORDER: 124 471 353 193 220 507 261 481 33 273 42 257 49 389 379 363 447 427 444 23 420 161 228 403 472 29 416 24 292 506

NI-ORDER: 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
NO-ORDER: 35 206 458 41 22 498 440 2 26 25 138 241 30 274 27 166 313 140 162 469 410 169 116 402 170 401 467 301 384 281

NI-ORDER: 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150
NO-ORDER: 468 318 237 392 18 415 310 504 459 329 262 455 258 19 436 309 499 385 88 503 270 475 97 413 291 153 154 417 489 20

NI-ORDER: 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180
NO-ORDER: 266 256 265 334 343 354 351 114 139 171 164 452 431 21 450 425 289 449 214 356 445 183 172 286 323 212 160 194 96 143

NI-ORDER: 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210
NO-ORDER: 157 192 380 327 64 199 83 184 71 386 188 460 280 434 388 294 222 374 430 253 189 117 276 102 285 185 39 106 191 232

NI-ORDER: 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240
NO-ORDER: 254 248 255 312 125 181 476 462 414 3 377 326 48 393 31 32 398 297 484 464 290 344 57 407 358 474 43 443 4 391

NI-ORDER: 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270
NO-ORDER: 5 34 350 122 93 362 50 412 321 52 51 58 311 215 196 165 158 439 47 500 293 252 491 283 148 178 465 473 396 127

NI-ORDER: 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300
NO-ORDER: 177 305 94 36 233 99 406 357 342 174 338 231 230 167 55 56 6 272 387 426 349 82 113 369 463 66 120 156 186 487

NI-ORDER: 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330
NO-ORDER: 340 105 339 100 86 77 325 69 44 397 360 296 411 205 207 201 204 202 203 208 470 501 275 75 37 38 76 466 277 437

NI-ORDER: 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360
NO-ORDER: 328 367 409 390 479 179 180 446 488 80 404 399 348 182 317 84 287 219 320 267 322 81 383 59 7 63 65 461 136 61

NI-ORDER: 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390
NO-ORDER: 176 8 60 234 62 168 159 221 260 493 421 198 300 299 190 217 89 70 422 109 314 45 378 371 372 210 308 132 131 394

NI-ORDER: 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420
NO-ORDER: 269 268 187 68 90 306 355 195 218 483 151 495 67 142 375 9 307 382 347 121 130 216 110 381 74 451 442 303 395 251

NI-ORDER: 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
NO-ORDER: 46 302 85 366 359 78 250 98 341 197 103 331 423 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450

NI-ORDER: 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480
NO-ORDER: 200 211 145 107 346 408 244 496 72 492 104 10 112 259 73 494 111 135 240 298 79 330 239 128 345 236 123 419 235 245

NI-ORDER: 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509
NO-ORDER: 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| NI-ORDER: | 41 | 98 | 220 | 239 | 241 | 287 | 355 | 362 | 406 | 462 | 487 | 497 | 509 | 33 | 53 | 40 | 38 | 125 | 134 | 150 | 164 | 95 | 80 | 88 | 100 | 99 | 105 | 10 | 86 | 103 |
| NO-ORDER: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| NI-ORDER: | 225 | 226 | 69 | 242 | 91 | 274 | 325 | 326 | 207 | 59 | 94 | 71 | 237 | 309 | 382 | 421 | 259 | 223 | 73 | 247 | 251 | 250 | 47 | 26 | 285 | 286 | 233 | 252 | 354 | 363 |
| NO-ORDER: | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| NI-ORDER: | 360 | 365 | 356 | 185 | 357 | 296 | 403 | 394 | 308 | 378 | 189 | 459 | 465 | 415 | 324 | 327 | 306 | 426 | 471 | 340 | 352 | 292 | 187 | 346 | 423 | 305 | 486 | 139 | 377 | 395 |
| NO-ORDER: | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| NI-ORDER: | 494 | 489 | 245 | 273 | 16 | 179 | 143 | 428 | 276 | 304 | 435 | 204 | 431 | 461 | 302 | 208 | 454 | 443 | 380 | 413 | 467 | 463 | 293 | 158 | 499 | 113 | 202 | 491 | 446 | 297 |
| NO-ORDER: | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| NI-ORDER: | 410 | 244 | 477 | 61 | 215 | 448 | 270 | 474 | 488 | 411 | 389 | 388 | 496 | 483 | 468 | 359 | 28 | 101 | 159 | 108 | 15 | 404 | 180 | 12 | 453 | 481 | 506 | 265 | 14 | 5 |
| NO-ORDER: | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 |
| NI-ORDER: | 401 | 19 | 146 | 147 | 450 | 298 | 181 | 257 | 367 | 177 | 82 | 109 | 42 | 161 | 256 | 106 | 284 | 366 | 112 | 115 | 160 | 173 | 20 | 280 | 29 | 361 | 271 | 266 | 336 | 337 |
| NO-ORDER: | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 |
| NI-ORDER: | 216 | 344 | 172 | 188 | 206 | 299 | 393 | 191 | 201 | 375 | 209 | 182 | 64 | 178 | 398 | 255 | 430 | 372 | 186 | 451 | 316 | 318 | 319 | 317 | 314 | 92 | 315 | 320 | 445 | 386 |
| NO-ORDER: | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 |
| NI-ORDER: | 452 | 176 | 8 | 169 | 254 | 412 | 376 | 399 | 348 | 65 | 368 | 197 | 436 | 438 | 439 | 437 | 440 | 83 | 447 | 283 | 282 | 210 | 275 | 364 | 479 | 476 | 123 | 498 | 473 | 469 |
| NO-ORDER: | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 |
| NI-ORDER: | 102 | 493 | 495 | 457 | 480 | 501 | 55 | 212 | 433 | 427 | 420 | 262 | 200 | 211 | 213 | 152 | 72 | 133 | 464 | 369 | 67 | 131 | 30 | 45 | 153 | 151 | 350 | 392 | 391 | 141 |
| NO-ORDER: | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 |
| NI-ORDER: | 11 | 288 | 70 | 104 | 323 | 203 | 329 | 46 | 3 | 193 | 120 | 44 | 264 | 56 | 205 | 174 | 347 | 485 | 167 | 231 | 145 | 89 | 261 | 196 | 492 | 312 | 228 | 470 | 374 | 373 |
| NO-ORDER: | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 |
| NI-ORDER: | 118 | 422 | 418 | 34 | 272 | 396 | 407 | 387 | 136 | 127 | 253 | 214 | 107 | 381 | 441 | 49 | 345 | 122 | 442 | 349 | 249 | 351 | 175 | 500 | 307 | 222 | 184 | 331 | 130 | 472 |
| NO-ORDER: | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 |
| NI-ORDER: | 432 | 60 | 449 | 154 | 434 | 490 | 18 | 281 | 303 | 301 | 429 | 279 | 155 | 232 | 475 | 455 | 409 | 343 | 291 | 243 | 157 | 32 | 63 | 156 | 397 | 170 | 278 | 235 | 425 | 311 |
| NO-ORDER: | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 |
| NI-ORDER: | 17 | 246 | 76 | 444 | 502 | 424 | 332 | 57 | 294 | 482 | 384 | 385 | 505 | 198 | 405 | 31 | 221 | 383 | 75 | 183 | 414 | 408 | 353 | 119 | 138 | 190 | 289 | 195 | 74 | 334 |
| NO-ORDER: | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 |
| NI-ORDER: | 240 | 124 | 224 | 390 | 419 | 269 | 310 | 227 | 342 | 21 | 116 | 114 | 84 | 341 | 22 | 277 | 234 | 456 | 333 | 111 | 313 | 248 | 144 | 215 | 126 | 87 | 148 | 48 | 478 | 81 |
| NO-ORDER: | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 |
| NI-ORDER: | 371 | 375 | 27 | 484 | 166 | 290 | 78 | 54 | 24 | 199 | 163 | 507 | 36 | 194 | 503 | 135 | 330 | 1 | 258 | 97 | 7 | 417 | 238 | 75 | 171 | 338 | 77 | 51 | 168 | 165 |
| NO-ORDER: | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 |
| NI-ORDER: | 416 | 162 | 43 | 25 | 132 | 23 | 52 | 93 | 129 | 192 | 358 | 218 | 295 | 230 | 267 | 328 | 117 | 121 | 110 | 321 | 62 | 85 | 268 | 236 | 142 | 217 | 9 | 6 | 335 | 504 |
| NO-ORDER: | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 |
| NI-ORDER: | 68 | 39 | 400 | 229 | 508 | 37 | 300 | 339 | 149 | 35 | 263 | 460 | 370 | 466 | 402 | 458 | 50 | 96 | 137 | 260 | 322 | 58 | 140 | 128 | 13 | 90 | 66 | 4 | 2 | |
| NO-ORDER: | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | |

References.

- [1] A.T. Balaban, Valence-isomerism of cyclopolyenes, Rev. Roumaine Chim. 11 (1966), 1097-1116; correction 12 (1967), 103.
- [2] A.T. Balaban, R.O. Davies, F. Harary, A. Hill, R. Westwick, Cubic identity graphs and planar graphs derived from trees, J. Austral. Math. Soc. 11 (1970), 207-215.
- [3] F.C. Bussemaker, J.J. Seidel, Cubical graphs of order $2n \leq 10$, T.H. Eindhoven, Note no. 10, September 1968.
- [4] F.C. Bussemaker, J.J. Seidel, Symmetric Hadamard matrices of order 36, T.H. Eindhoven Report (1970), 70-WSK-02.
- [5] F.C. Bussemaker, D.M. Cvetković, There are exactly 13 connected, cubic integral graphs, to appear.
- [6] P.J. Cameron, J.M. Goethals, J.J. Seidel, E.E. Shult, Line graphs, root systems, and elliptic geometry, J. of Algebra, to appear.
- [7] V.G. Cerf, D.D. Cowan, R.C. Mullin, R.G. Stanton, A partial census of trivalent generalized Moore networks, Combinatorial mathematics III, ed. A.P. Street and W.D. Wallis, Lecture Notes Math. 452, Berlin-Heidelberg-New York 1975, 1-27.
- [8] L. Collatz, U. Sinogowitz, Spektren endlicher Grafen, Abh. Math. Sem. Univ. Hamburg 21 (1957), 63-77.
- [9] J.M. Cvetković, Graphs and their spectra, Univ. Beograd, Publ. Elektrotechn. Fak. Ser. Mat. Fiz. no. 354-no. 356 (1971), 1-50.
- [10] D.M. Cvetković, Cubic integral graphs, Univ. Beograd, Publ. Elektrotechn. Fak. Ser. Mat. Fiz. no. 498-no. 541 (1975), 107-113.
- [11] D.M. Cvetković, Spectra of graphs formed by some unary operations, Publ. Inst. Mat. (Beograd), to appear.
- [12] M. Fiedler, Algebraic connectivity of graphs, Czech. Math. J. 23(98) (1973), 298-305.
- [13] F. Harary, Graph theory, Reading 1969.
- [14] W. Imrich, Zehnpunktige kubische Graphen, Aequat. Math., 6 (1971), no. 1, 6-10.

- [15] J. H. van Lint, J.J. Seidel, Equilateral point sets in elliptic geometry, *Indag. Math.* 28 (1966), no. 3, 335-348.
- [16] L. Lovasz, J. Pelikan, On the eigenvalues of trees, *Periodica Math. Hungarica* 3 (1-2) (1973), 175-182.
- [17] A. Pellerin, R. Laskar, Cubic graphs on twelve vertices and the line graph of a finite affine plane, Preliminary report, *Not. Amer. Math. Soc.* 18 (1971), 1046.
- [18] L.P. Petrenjuk, A.N. Petrenjuk, On constructive enumeration of 12-vertex cubic graphs (Russian), *Combinatorial analysis*, no. 3 (1974), Moscow, edited by A. Rybnikov, 72-82.
- [19] H. Sachs, Beziehungen zwischen den in einem Graphen enthaltenen Kreisen und seinem charakteristischen Polynom, *Publ. Math. (Debrecen)* 11 (1963), 119-134.
- [20] N.J.A. Sloane, *A handbook of integer sequences*, New York-London 1973.
- [21] Solution to 5786, *Amer. Math. Monthly* 79 (1972), 525-527.