f91 ✓

(1980)

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Bell Laboratories

Neil: a sequence

1, 2, 3, 4, 5, 6, 10, 15, 45, 120, ...
Maximal iterated binomial coefficients
Ref. S.W. Golomb
Amer Math Monthly 87 (1980) p725

Colin

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new

And here's another:

1 15 222 3660 ...

Labelled connected graphs with one cycle

Colin

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~~[illegible]~~

C. L. Mallows
Murray Hill 2C-482
Extension 3851

n posed by R. GRAHAM
h that $\sin \pi x \sin \pi y$ is

v that if ζ is a primitive

mes has been given by

R_Δ, and hence

plies that $\zeta_\Delta \in \{R_m, R_n\}$,

R_n, and so (5) is proved.

R_n, it must also belong
is real, it must in fact

$ab) \geqslant \varphi(a)\,\varphi(b)$ for all

These inequalities imply that

$$\varphi\binom{m}{\delta} \leqslant 1, \quad \varphi\binom{n}{\delta} \leqslant 1;$$

thu ... es for $m/n =$
$(m$ ... mma.
... $(1-x)$, there
is

... lized so that

0 ...

(9)

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C L Mallows letter, 1980

one page

(10)

(11)

This equation implies that

$$R(\zeta_m^a + \zeta_m^{-a}) = R(\zeta_n^b + \zeta_n^{-b}).$$

Since these fields are normal and $(a, m) = 1$, $(b, n) = 1$, we get that

$$R(\zeta_m + \zeta_m^{-1}) = R(\zeta_m^a + \zeta_m^{-a}),$$

$$R(\zeta_n + \zeta_n^{-1}) = R(\zeta_n^b + \zeta_n^{-b}).$$

Hence

$$R(\zeta_m + \zeta_m^{-1}) = R(\zeta_n + \zeta_n^{-1}).$$

Then Lemma 2 implies that $m = n$ or $m = 2n$; thus

$$\zeta_n = \zeta_m \quad \text{or} \quad \zeta_m^2,$$

and so must belong to R_m.

Determine a' so that $aa' \equiv 1 \bmod m$, and apply the automorphism of R_m

$$\zeta_m \to \zeta_m^a,$$