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A294968: Some poor approximation of $\sqrt{\pi}$

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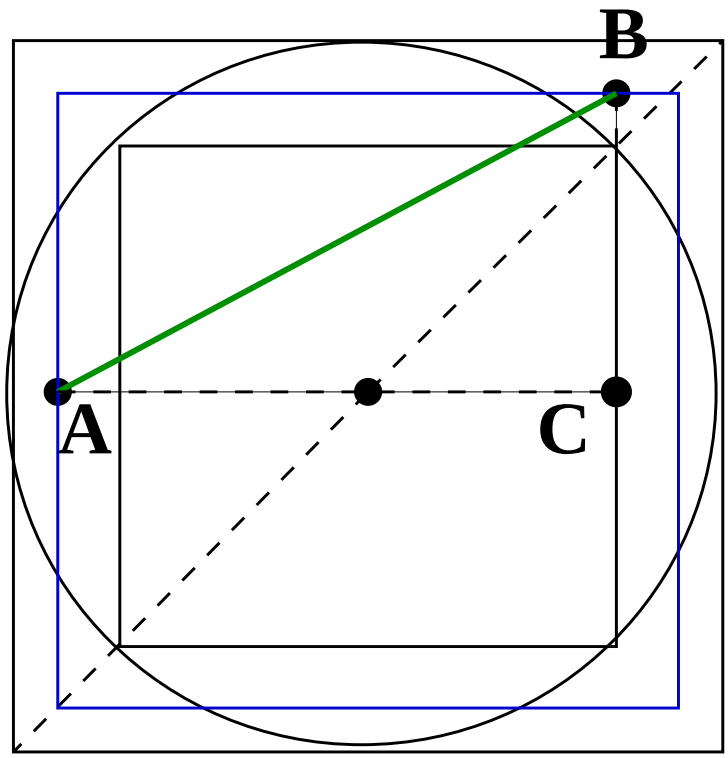
In *Martin Gardner* [1] reference one finds the figure, redrawn below, showing three squares and a circle: the outer square circumscribing the circle of radius 1 (in some length units), the inner square inscribed in the circle (with sides parallel to the outer square) and the middle square. The length of $\overline{AB}$ is obtained from $\sqrt{\overline{AC}^2 + \overline{CB}^2}$ with $\overline{AC} = \frac{1}{4}(3\sqrt{2}+2) \simeq 1.5607$ and $\overline{CB} = \frac{1}{4}(\sqrt{2}+2) \simeq 0.8536$. The result (in green) is $\overline{AB} = \frac{1}{2}\sqrt{7+4\sqrt{2}} =$ A294968 $\simeq 1.77882$. This is not a good approximation to $\sqrt{\pi} =$ A002161 $\simeq 1.77245$.



References

[1] Martin Gardner, Logic Machines and Diagrams, Second Ed., 1982, The Harvester Press, p. 26, Figure 15.

Keywords: Squaring the circle approximation

Concerned with OEIS sequences A294968.

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