

'The laws of nature are but the mathematical thoughts of God.'

Euclid

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FORMULA No.

**W05** 

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We are not mathematicians, but we love mathematics and create formulas ourselves.

'No other science boosts the faith in the strength of the human spirit like mathematics.' Hugo Steinhaus

# 1 WEEK = 7 DAYS 7 FORMULAS



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} arccos \left( \frac{1 + \sqrt{(2^{2 \times k} - 1) \times (2^{2 \times k + 2} - 1)}}{2^{2 \times k + 1}} \right) = \frac{\pi}{6}$$



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$$k \in N$$

$$\sum_{k=\infty}^{k=\infty} 3^{k-1} \times \sin^3\left(\frac{\pi}{5 \times 3^k}\right) = \frac{4 \times \pi - 5 \times \sqrt{10 - 2 \times \sqrt{5}}}{80}$$



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$$\sum_{k=1}^{k=\infty} arccos \left( \frac{2 - \sqrt{2} + \sqrt{(2^{2 \times k} - 2 + \sqrt{2}) \times (2^{2 \times k + 2} - 2 + \sqrt{2})}}{2^{2 \times k + 1}} \right) = \frac{\pi}{8}$$



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$$\sum_{k=\infty}^{k=\infty} 3^{k-1} \times \sin^3\left(\frac{\pi}{10 \times 3^{k-1}}\right) = \frac{6 \times \pi - 5 \times \left(\sqrt{5} + 1\right)}{80}$$



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} arccos \left( \frac{2 - \sqrt{3} + \sqrt{(2^{2 \times k} - 2 + \sqrt{3}) \times (2^{2 \times k + 2} - 2 + \sqrt{3})}}{2^{2 \times k + 1}} \right) = \frac{\pi}{12}$$



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D056

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$$\prod_{k=1}^{k=\infty} \frac{\cos\left(\frac{\pi}{5 \times 2^{k-1}}\right)}{\cos^2\left(\frac{\pi}{5 \times 2^k}\right)} = \frac{\pi}{5 \times \sqrt{5 - 2 \times \sqrt{5}}}$$



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$$k \in N$$

$$\prod_{k=\infty}^{k=\infty} cos\left(\frac{3\times\pi}{5\times2^{2\times k}}\right)\times cos\left(\frac{3\times\pi}{5\times2^{2\times k+1}}\right) = \frac{5\times(\sqrt{5}+1)}{6\times\pi}$$

