

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

FORMULA No.

**W26** 

www.and-just-math.com

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



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

FORMULA No.

**D261** 

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$$k \in N$$

$$\sum_{k=\infty}^{k=\infty} sin\left(\frac{\pi}{4\times 3^{k-1}}\right) \times sin\left(\frac{-\pi}{8\times 3^{k-1}}\right) = \frac{\sqrt{2-\sqrt{2}}-2}{4}$$



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



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$$\sum_{k=1}^{k=\infty} tg\left(\frac{3\times\pi}{2^{k+3}}\right) \times \left[1 + tg\left(\frac{3\times\pi}{2^{k+2}}\right) \times tg\left(\frac{3\times\pi}{2^{k+3}}\right)\right]$$
$$= \sqrt{2} + 1$$



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$$\prod_{k=1}^{k=\infty} \cos \frac{\pi}{2^{k+2}} = \frac{2 \times \sqrt{2}}{\pi}$$



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$$k \in N$$

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



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$$k \in N$$

$$\sum_{k=\infty}^{k=\infty} (-1)^{k-1} \times \cos\left(\frac{3\times\pi}{2^{k+3}}\right) \times \cos\left(\frac{\pi}{2^{k+3}}\right) = \frac{\sqrt{2}}{4} \pm \frac{1}{2}$$



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$$\sum_{k=1}^{k=\infty} (-1)^{k-1} \times \frac{\sin\left(\frac{4 \times \pi}{3^{k+1}}\right)}{\cos\left(\frac{\pi}{3^k}\right) \times \cos\left(\frac{\pi}{3^{k+1}}\right)} = \sqrt{3}$$

