

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

FORMULA No.

**W38** 

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



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FORMULA No.

**D381** 

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$$k \in N$$

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



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FORMULA No.

D382

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{2 \times k^2 + 8 \times k - 5}{(26 \times k^2 + 198 \times k + 401) \times (26 \times k^2 + 250 \times k + 625)} = \frac{1}{3250}$$



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$$\sum_{k=\infty}^{k=\infty} \frac{k \times \sqrt{5 \times k^2 + 10 \times k + 6} - (k+1) \times \sqrt{5 \times k^2 + 1} + 1}{k \times (k+1)} =$$

$$= 1 + \sqrt{5} - \sqrt{6}$$



'The laws of nature are but the mathematical thoughts of God.' D384

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$$k \in N$$

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



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} (-1)^{k-1} \times \frac{\sin\left(\frac{\pi}{2^{k+3}}\right)}{\cos\left(\frac{\pi}{3\times 2^{k+2}}\right) \times \cos\left(\frac{\pi}{3\times 2^{k+3}}\right)} = \sqrt{6} - \sqrt{3} + \sqrt{2} - 2$$



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{2 \times k^2 + 12 \times k + 19}{(k+2) \times (k+3) \times (k+4) \times (k+5)} = \frac{7}{15}$$



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} arc \ tg \left( \frac{k \times k!}{k! \times [2 \times (k+1)! - 1] - (k+1)! + 1} \right) = \frac{\pi}{4}$$

