

# **FORMULAS**

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

FORMULA No.

**W05** 

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.

**D051** 

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$$\sum_{k=1}^{k=\infty} \frac{(k^2 + 4 \times k + 5) \times 2^{k+2}}{k \times (k+1) \times (k+5)!} = \frac{1}{15}$$



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**D052** 

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{2 \times (k+2)^8 - (k+1)^7}{(k+2)! \times [(k+1) \times (k+2)]^7 \times 2^{k-8}} = 1$$



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



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$$k \in N$$

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



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$$\sum_{k=1}^{k=\infty} \frac{2^{2 \times k - 2} \times (k-1)^2}{k \times (k+1) \times (k+1)!} = 1$$



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$$k \in N$$

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



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$$\sum_{k=1}^{k=\infty} \frac{5 \times (k+1)^{k-2} - k^{k-3}}{k^{k-3} \times (k+1)^{k-2} \times 5^k} = 1$$

