

# **FORMULAS**

'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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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{16 \times k^4 + 88 \times k^3 + 225 \times k^2 + 346 \times k + 225}{(4 \times k + 1) \times (4 \times k + 5) \times (k + 2)^2 \times (k + 3)^2} = \frac{2 \times \pi^2 - 15}{12}$$



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**D382** 

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{16 \times k^4 + 48 \times k^3 + 120 \times k^2 + 116 \times k + 25}{(2 \times k + 3) \times (2 \times k + 5) \times (4 \times k^2 - 1)^2} = \frac{\pi^2}{8}$$



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$$k \in N$$

$$\sum_{k=0}^{k=\infty} \frac{[(8 \times k^2 + 19 \times k + 11) \times k! + 4 \times k^3 + 8 \times k^2 + 2 \times k - 2] \times k! \times 2^{k+2}}{(2 \times k + 3)!} = 5 \times (\pi - 2)$$



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{256 \times k^4 - 384 \times k^3 - 960 \times k^2 + 632 \times k - 77}{(4 \times k - 3) \times (4 \times k + 1) \times (16 \times k^2 - 121) \times (16 \times k^2 - 49)} = \frac{\pi}{72}$$



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{2 \times k^4 + 14 \times k^3 + 39 \times k^2 + 49 \times k + 23}{(k+1)^3 \times (k+2)^3} = \frac{8 \times \pi^2 - 45}{24}$$



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$$\sum_{k=1}^{k=\infty} \frac{1}{16 \times k^2 - 49} = \frac{7 \times \pi + 4}{392}$$



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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{256 \times k^4 + 128 \times k^3 + 512 \times k^2 + 472 \times k + 135}{(4 \times k - 1) \times (4 \times k + 3) \times (16 \times k^2 - 1) \times [16 \times (k + 1)^2 - 1]} = \frac{4 - \pi}{8}$$

