



# FORMULAS

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

FORMULA No.

**W51**

[www.and-just-math.com](http://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**

**NEW MATHEMATICAL FORMULA DAILY**



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FORMULA No.

**D511**

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$$\sum_{k=1}^{k=\infty} \operatorname{tg} \left( \frac{\pi}{4 \times 3^{k+1}} \right) \times \left[ 1 + \operatorname{tg} \left( \frac{\pi}{8 \times 3^k} \right) \times \operatorname{tg} \left( \frac{\pi}{8 \times 3^{k+1}} \right) \right] \quad k \in \mathbb{N}$$
$$= \sqrt{6} - \sqrt{3} + \sqrt{2} - 2$$

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$k \in N$

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

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$$\sum_{k=1}^{k=\infty} \sin\left(\frac{\pi}{3^k}\right) \times \sin\left(\frac{\pi}{2 \times 3^k}\right) = \frac{1}{2} \quad k \in \mathbb{N}$$

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$$\sum_{k=1}^{k=\infty} \frac{2^k}{(3 + \sqrt{5}) \times 2^{2 \times k - 2} - 3 \times (1 + \sqrt{5}) \times 2^{k-2} + 1} = 2 \quad k \in \mathbb{N}$$

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$$\sum_{k=1}^{k=\infty} (-1)^k \times 3^{4 \times k} \times \left(\frac{\pi}{2}\right)^{2 \times k} \times \frac{(2 \times k + 1) \times 2^{2 \times k} - 9 \times \pi}{(2 \times k + 1)!} \quad k \in \mathbb{N}$$
$$= 9 \times \pi - 4$$

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$$\sum_{k=1}^{k=\infty} (-1)^{k-1} \times \frac{\sin\left(\frac{5 \times \pi}{8 \times 3^k}\right) + \sin\left(\frac{5 \times \pi}{8 \times 3^{k+1}}\right)}{\operatorname{tg}\left(\frac{5 \times \pi}{4 \times 3^{k+1}}\right)} \quad k \in \mathbb{N}$$
$$= \frac{(\sqrt{2} + 2 \times \sqrt{3} + \sqrt{6} + 4) \times \sqrt{8 + 2 \times \sqrt{6} - 4 \times \sqrt{2} - 4 \times \sqrt{3}} \pm 8}{8}$$

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$k \in N$

$$\sum_{k=1}^{k=\infty} \frac{(k+1)^2 \times (k^6 + k^5 - 4 \times k^4 - k^3 + 13 \times k^2 + 12 \times k + 4)}{k! \times (k^3 - k^2 - 2 \times k - 1) \times (k^3 + 2 \times k^2 - k - 3)} = -\frac{4}{3}$$

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week and every day  
to our website  
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