

*In memory of Justynka, my wife*

# FORMULAS

FORMULA No.

**W08**

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

[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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# FORMULAS

FORMULA No.

**D081**

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

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# FORMULAS

FORMULA No.

**D082**

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$k \in \mathbb{N}$

$$\prod_{k=1}^{k=\infty} \left( 1 - 4 \times \sin \left( \frac{\pi}{24 \times 5^{k-1}} \right) \times \sin \left( \frac{\pi}{8 \times 5^{k-1}} \right) \right)$$
$$= \frac{(\sqrt{2} + 2 \times \sqrt{3} + \sqrt{6} + 4) \times \sqrt{8 + 2 \times \sqrt{6} - 4 \times \sqrt{2} - 4 \times \sqrt{3}}}{8}$$

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**D083**

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$k \in \mathbb{N}$

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

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**D084**

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$$\sum_{k=1}^{k=\infty} \frac{k^2 + 7 \times k + 13}{(k + 3) \times (k + 4) \times (k + 4)!} = \frac{1}{96} \quad k \in \mathbb{N}$$

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**D085**

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$$\sum_{k=1}^{k=\infty} \frac{1}{(7 \times k + 10) \times (7 \times k + 17)} = \frac{1}{117} \quad k \in \mathbb{N}$$

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$k \in \mathbb{N}$

$$\sum_{k=1}^{k=\infty} \frac{(k+8)^{k+1} + (k+6)^{k-1} - 2 \times (k+7)^k}{[(k+8)^{k+1} - (k+7)^k] \times [(k+7)^k - (k+6)^{k-1}]} = \frac{1}{7}$$

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**D087**

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$k \in N$

$$\sum_{k=1}^{k=\infty} \frac{88 \times k^2 - 86 \times k - 1}{(11 \times k - 10) \times (11 \times k + 1) \times (77 \times k - 76) \times (77 \times k + 1)} = \frac{1}{847}$$

**NEW MATHEMATICAL FORMULA DAILY**





We invite you every  
week and every day  
to our website  
[www.and-just-math.com](http://www.and-just-math.com)

Thanks for:  
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