

*In memory of Justynka, my wife*

# FORMULAS

FORMULA No.

**W13**

'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.

**D131**

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$k \in N$

$$\sum_{k=1}^{k=\infty} \frac{k^8 + 18 \times k^7 + 173 \times k^6 + 1004 \times k^5 + 3476 \times k^4 + 7048 \times k^3 + 8072 \times k^2 + 4800 \times k + 1152}{k^2 \times (k+1)^2 \times (k+2)^2 \times (k+3)^4 \times (k+4)^2} = \frac{4 \times \pi^2 - 33}{48}$$

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$$\sum_{k=1}^{k=\infty} \frac{64 \times k^4 + 76 \times k^2 + 64 \times k + 15}{(4 \times k^2 - 1) \times (16 \times k^2 - 1) \times [16 \times (k + 1)^2 - 1]} = \frac{4 - \pi}{8} \quad k \in \mathbb{N}$$

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$$\sum_{k=1}^{k=\infty} \frac{k^4 + 17 \times k^3 + 119 \times k^2 + 381 \times k + 441}{(k+2)^2 \times (k+3)^2 \times (k+6) \times (k+7)} = \frac{2 \times \pi^2 - 15}{12} \quad k \in N$$

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$$\sum_{k=1}^{k=\infty} \frac{(k^3 + 6 \times k^2 + 15 \times k + 9) \times (k - 1)!^2}{(2 \times k + 3)!} = \frac{\pi^2}{36} \quad k \in N$$

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$k \in \mathbb{N}$

$$\sum_{k=1}^{k=\infty} \frac{16 \times k^4 + 32 \times k^3 + 83 \times k^2 + 73 \times k + 12}{(k+1) \times (k+2) \times (16 \times k^2 - 9) \times (16 \times k^2 - 1)} = \frac{\pi}{8}$$

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$$\sum_{k=1}^{k=\infty} \frac{1}{4 \times (2 \times k - 1)^2 - 625} = \frac{\pi}{200} \quad k \in \mathbb{N}$$

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D137

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$k \in N$

$$\sum_{k=1}^{k=\infty} \frac{64 \times k^4 + 448 \times k^3 + 1628 \times k^2 + 3200 \times k + 2475}{(2 \times k + 3) \times (2 \times k + 5) \times (4 \times k + 5) \times (4 \times k + 7) \times (4 \times k + 9) \times (4 \times k + 11)} = \frac{105 \times \pi - 304}{840}$$

NEW MATHEMATICAL FORMULA DAILY





We invite you every  
week and every day  
to our website  
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Thanks for:  
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Photo Gordon Johnson z Pixabay  
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