

*In memory of Justynka, my wife*

# FORMULAS

FORMULA No.

**W09**

'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.

**D091**

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$$\sum_{k=1}^{k=\infty} \frac{(k+2) \times (k+3) \times p_{k+1} - p_k}{(k+2)! \times (k+3)! \times p_k \times p_{k+1}} = \frac{1}{24} \quad k \in N$$

*p<sub>k</sub> (k-th prime number)*

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$k \in \mathbb{N}$

$$\sum_{k=1}^{k=\infty} \frac{(3 \times p_k + 7) \times p_{k+1} \times (p_{k+4} - p_{k+2}) \times p_{k+5} - 7 \times p_k \times p_{k+2} \times (p_{k+5} - p_{k+3})}{p_k \times p_{k+1} \times p_{k+2} \times p_{k+3} \times p_{k+4} \times p_{k+5}} = \frac{54}{385}$$

$p_k$  ( $k$ -th prime number)

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$$\sum_{k=1}^{k=\infty} \frac{(k+2) \times p_{k+5}^2 - p_{k+4}^2}{p_{k+4}^2 \times p_{k+5}^2 \times (k+2)!} = \frac{1}{242} \quad k \in \mathbb{N}$$

*p<sub>k</sub> (k-th prime number)*

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$$\sum_{k=1}^{k=\infty} \frac{1}{4 \times (2 \times k - 1)^2 - 81} = \frac{\pi}{72} \quad k \in \mathbb{N}$$

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$$\prod_{k=1}^{k=\infty} \left[ 1 + \frac{2 \times 3^k \times (p_{k+1}! - 3 \times p_k!)}{(p_k! - 2 \times 3^k) \times p_{k+1}!} \right] = -\frac{1}{2} \quad k \in \mathbb{N}$$

$p_k$  ( $k$ -th prime number)

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$k \in N$

$$\sum_{k=1}^{k=\infty} \operatorname{arc} \operatorname{tg} \left\{ \frac{2 \times [3 \times k \times (k + 1) + 1]}{k^3 \times (k + 1)^3 + 4} \right\} = \operatorname{arc} \operatorname{tg}(2)$$

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$k \in \mathbb{N}$

$$\sum_{k=1}^{k=\infty} \frac{49 \times k^5 + 287 \times k^4 + 681 \times k^3 + 1172 \times k^2 + 1552 \times k + 576}{(7 \times k - 4) \times (7 \times k + 3) \times (k + 2)^3 \times (k + 3)^3 \times (k + 4)^3} = \frac{533 - 54 \times \pi^2}{54}$$

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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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