

*In memory of Justynka, my wife*

# FORMULAS

FORMULA No.

W18



'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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FORMULA No.

**D181**

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$$\prod_{k=1}^{k=\infty} \left\{ 1 - \frac{84 \times [(k+4) \times p_k - p_{k+1}]}{5 \times (k+4)! + 84 \times (k+4) \times p_k} \right\} = \frac{5}{12}$$

$k \in N$

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

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$$\sum_{k=1}^{k=\infty} \frac{[(k+4) \times p_{k+3}^3 - 5 \times p_{k+2}^3] \times 5^{k+2}}{p_{k+2}^3 \times p_{k+3}^3 \times (k+4)!} = \frac{1}{24} \quad k \in \mathbb{N}$$

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

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$k \in \mathbb{N}$

$$\sum_{k=1}^{k=\infty} \frac{4 \times (k^2 + 5 \times k + 5) \times p_{k+1}^3 \times p_{k+2}^3 + (k+2)^2 \times [(k+1)^2 \times p_{k+2}^3 - k^2 \times p_{k+1}^3]}{k^2 \times (k+1)^2 \times (k+2)^2 \times p_{k+1}^3 \times p_{k+2}^3} = \frac{144 \times \pi^2 - 1265}{108}$$

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

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$k \in \mathbb{N}$

$$\sum_{k=1}^{k=\infty} \frac{k^2 \times (2 \times k^2 + 4 \times k + 1) \times p_{k+1}^3 - (k+1)^2 \times (2 \times k^2 - 1) \times p_k^3}{(2 \times k^2 - 1) \times (2 \times k^2 + 4 \times k + 1) \times p_k^3 \times p_{k+1}^3} = \frac{1}{8}$$

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

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$k \in N$

$$\sum_{k=1}^{k=\infty} k \times \frac{[p_{k+4}^5 \times p_{k+5}^5 + 5 \times (5 \times p_{k+5}^5 - 2 \times p_{k+4}^5) \times p_{k+6}^5]}{p_{k+4}^5 \times p_{k+5}^5 \times p_{k+6}^5 \times 5^{k+1}} = \frac{1}{11^5}$$

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

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$k \in N$

$$\sum_{k=1}^{k=\infty} \frac{28 \times [(k+4) \times p_{k+1}^2 - p_k^2] - (k+4)! \times (p_{k+1}^2 - p_k^2)}{p_k^2 \times p_{k+1}^2 \times (k+4)!} = \frac{1}{24}$$

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

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$$\sum_{k=1}^{k=\infty} \frac{k \times [2 \times (k + 1)! - k - 2]}{(k + 1)!^2} = 1 \quad k \in \mathbb{N}$$

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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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Photo Gordon Johnson z Pixabay  
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