*In memory of Justynka, my wife*

# FORMULAS

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

FORMULA No.

W05

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

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Euclid

FORMULA No.

D051

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{(k+1) \times (k+3) \times p_{k+2} - (k+2) \times p_k}{p_k \times p_{k+1} \times p_{k+2} \times (k+3)!} = \frac{1}{18}$$

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

## NEW MATHEMATICAL FORMULA DAILY

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D052

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$$\sum_{k=1}^{k=\infty} \frac{p_{k+3} \times \left( p_k^{\frac{1}{p_k}} - 1 \right) - p_{k+1} \times \left( p_{k+1}^{\frac{1}{p_{k+1}}} - 1 \right)}{p_{k+1} \times p_{k+2} \times p_{k+3}} = \frac{\sqrt{2} - 1}{15} \qquad k \in N$$

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

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{(p_{k+1} - p_k) \times [p_k \times p_{k+1} + {p_k}^2 + {p_{k+1}}^2 + 4 \times (p_k + p_{k+1}) + 3]}{p_k \times (p_k + 1) \times (p_k + 3) \times p_{k+1} \times (p_{k+1} + 1) \times (p_{k+1} + 3)} = \frac{1}{30}$$

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

NEW MATHEMATICAL FORMULA DAILY

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# FORMULAS

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**FORMULA No.**

**D054**

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{(p_{k+2} - p_{k+1}) \times [p_{k+1} \times p_{k+2} + (p_{k+1} + p_{k+2}) \times ln2] - p_{k+1} \times p_{k+2} \times \left(p_{k+2} \times 2^{\frac{1}{p_{k+1}}} - p_{k+1} \times 2^{\frac{1}{p_{k+2}}}\right)}{{p_{k+1}}^2 \times {p_{k+2}}^2} = \frac{3 - 3 \times 2^{\frac{1}{3}} + ln2}{9}$$

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

## NEW MATHEMATICAL FORMULA DAILY

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{p_{k+2} \times p_{k+3} \times ln(p_{k+1}) - {p_{k+1}}^2 \times ln(p_{k+2})}{{p_{k+1}}^2 \times {p_{k+2}}^2 \times p_{k+3}} = \frac{ln(3)}{45}$$

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

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{[p_k{}^2 \times ln(p_{k+1}) - p_{k+1} \times p_{k+2} \times ln(p_k)] \times k + [p_k \times ln(p_{k+1}) + p_{k+1} \times (p_{k+2} - p_k)] \times p_k}{p_k{}^2 \times p_{k+1}{}^2 \times p_{k+2}} = \frac{2 - ln(2)}{12}$$

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

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{(p_{k+1} - p_k) \times [9 \times p_k \times p_{k+1} - 2 \times (p_k + p_{k+1})]}{{p_k}^2 \times {p_{k+1}}^2} = 4$$

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

## NEW MATHEMATICAL FORMULA DAILY

# We invite you every week and every day to our website www.and-just-math.com

Thanks for:
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