In memory of Justynka, my wife

FORMULAS

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

FORMULA No.

W17

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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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$$\boldsymbol{k \in N}$$

$$\sum_{k=1}^{k=\infty} \frac{72 \times k \times {p_k}^2 \times {p_{k+1}}^2 + [9 \times (4 \times k^2 + 1) - 1] \times ({p_{k+1}}^2 - {p_k}^2) - 36 \times k \times ({p_k}^2 + {p_{k+1}}^2)}{[9 \times (2 \times k - 1)^2 - 1] \times [9 \times (2 \times k + 1)^2 - 1] \times ({p_k}^2 - 1) \times ({p_{k+1}}^2 - 1)} = \frac{1}{6}$$

p_k (k-th prime number)

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{2 \times (k+1) \times (k+2) \times (k+3) - k \times [(k+1) \times (k+3) + 2]}{k \times (k+1) \times (k+2)^2 \times (k+3)} = \frac{2 \times \pi^2 - 7}{12}$$

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{2 \times (3 \times p_k \times p_{k+1} + 2 \times p_{k+1} - p_k) \times k + 7 \times p_k \times p_{k+1} + 6 \times p_{k+1} - 5 \times p_k}{p_k \times p_{k+1} \times 2^k} = 21\frac{1}{2}$$

p_k *(k-th prime number)*

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{5 \times {p_k}^3 \times ({p_{k+1}}^3 - 1) \times (k+1)^2 \times (k+3) - ({p_k}^3 - 1) \times ({p_{k+1}}^3 + 4) \times k^2 \times (k+2)}{k^2 \times (k+1)^2 \times (k+2) \times (k+3) \times ({p_k}^3 - 1) \times ({p_{k+1}}^3 - 1)} = \frac{14 \times \pi^2 - 39}{42}$$

p_k (k-th prime number)

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$$k \in N$$

$$\prod_{k=1}^{k=\infty}\left[1-\frac{115\times\left({p_{k+1}}^{2}-{p_k}^{2}\right)}{\left(110\times {p_k}^{2}+89\right)\times\left(5\times {p_{k+1}}^{2}+3\right)}\right]=\frac{22}{23}$$

p_k (k-th prime number)

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$$k \in N$$

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

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{(k+2)\times(k^2+13\times k+38)\times p_k\times p_{k+1}+(k+5)^2\times p_{k+1}-(k+2)\times(k+4)\times p_k}{(k+2)\times(k+3)\times(k+4)^2\times(k+5)^2\times p_k\times p_{k+1}} = \frac{6067-600\times\pi^2}{3600}$$

p_k (k-th prime number)

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