FORMULAS

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

FORMULA No.

W31

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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

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$$k \in N$$

$$\prod_{k=1}^{k=\infty} \cos \frac{\pi}{2^{k+1}} = \frac{2}{\pi}$$

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$$\sum_{k=1}^{k=\infty} (-1)^{k-1} \times sin\left(\frac{\pi}{2^{k+3}}\right) \times cos\left(\frac{\pi}{3 \times 2^{k+3}}\right) \qquad k \in N$$

$$= \frac{\sqrt{6}-\sqrt{2}}{8}$$

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} (-1)^{k-1} \times cos\left(\frac{3 \times \pi}{2^{k+2}}\right) \times cos\left(\frac{\pi}{2^{k+2}}\right) = \pm\frac{1}{2}$$

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$$\sum_{k=1}^{k=\infty} (-1)^{k-1} \times \frac{\sin\left(\frac{\pi}{3^{k+1}}\right)}{\cos\left(\frac{\pi}{4 \times 3^{k}}\right) \times \cos\left(\frac{\pi}{4 \times 3^{k+1}}\right)} \qquad k \in N$$

$$= 2 - \sqrt{3}$$

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} sin\left(\frac{3 \times \pi}{2^{2 \times k+2}}\right) \times cos\left(\frac{5 \times \pi}{2^{2 \times k+2}}\right) = \frac{1}{2}$$

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$$k \in N$$

$$\sum_{k=1}^{k=\infty} sin\left(\frac{\pi}{2^{k+3}}\right) \times sin\left(\frac{-\pi}{3 \times 2^{k+3}}\right) = \frac{\sqrt{6}+\sqrt{2}-4}{8}$$

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$$\sum_{k=1}^{k=\infty} (-1)^{k-1} \times \frac{ctg\left(\frac{5 \times \pi}{3 \times 2^{k}}\right) + ctg\left(\frac{5 \times \pi}{3 \times 2^{k+1}}\right)}{ctg\left(\frac{5 \times \pi}{3 \times 2^{k}}\right) \times ctg\left(\frac{5 \times \pi}{3 \times 2^{k+1}}\right)} = -\frac{\sqrt{3}}{3} \qquad k \in N$$

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

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