

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

FORMULA No.

**W18** 

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



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

FORMULA No.

D181

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 $k, n \in N$ 

$$\sum_{k=1}^{k=n} \frac{5^{k-1} \times (k-2)}{(k+3)!} = \frac{1}{6} - \frac{5^n}{(n+3)!}$$



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D182

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$$\sum_{k=1}^{k=n} (k^2 + 3 \times k + 1) \times k!$$

$$= (n+3) \times (n+1)! - 3$$



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**D183** 

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$$\sum_{k=1}^{k=n} \frac{k^3 - (k+1)^2}{k!} = 1 - \frac{(n+1)^2}{n!}$$



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**D184** 

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$$\sum_{k=1}^{k=n} 2^{k-1} \times (2 \times k^2 + 7 \times k + 4) \times k!$$

$$= 2^n \times (n+3) \times (n+1)! - 3$$



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D185

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$$k, n \in N$$

$$\sum_{k=1}^{k=n} \frac{(k-1)! \times [(k^2+1) \times (k-1) - 3k]}{k^2 \times (k+1)^2} = \frac{n!}{(n+1)^2} - 1$$



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FORMULA No.

D186

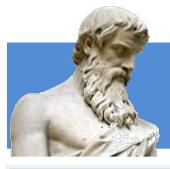
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$$\sum_{k=1}^{k=n} \frac{2^{k-1} \times (2 \times k+5) \times k \times k!}{3^k}$$

$$= \frac{2^n \times (n+3) \times (n+1)!}{3^n} - 3$$



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D187

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$$k, n \in N$$

$$\sum_{k=1}^{k=n} arctan\left(\frac{2^{k}}{2^{2\times k+1}+1}\right) = arctan\left(\frac{2^{n+1}-2}{2^{n+2}+1}\right)$$

