# FORMULAS

In memory of Justynke, my wife

FORMULA No.

**W18** 

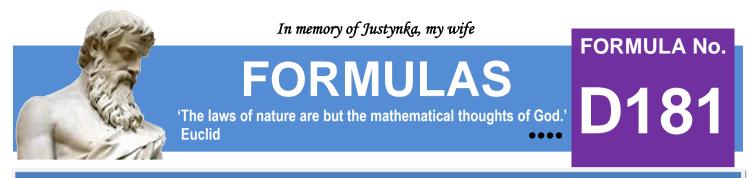
'The laws of nature are but the mathematical thoughts of God.'

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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



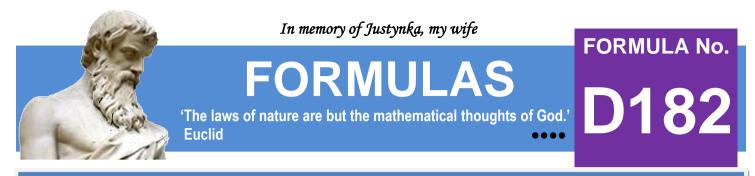


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 $k \in N$ 

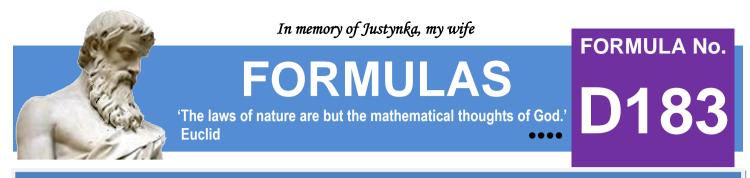
$$\sum_{k=1}^{k=\infty} \frac{16 \times k^4 + 152 \times k^3 + 709 \times k^2 + 1840 \times k + 1936}{(k+2) \times (k+3)^2 \times (k+4)^2 \times (4 \times k + 7) \times (4 \times k + 11)} = \frac{61 - 6 \times \pi^2}{36}$$



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$$\sum_{k=1}^{k=\infty} \frac{36 \times k^4 + 24 \times k^3 + 109 \times k^2 + 79 \times k + 16}{(3 \times k + 1) \times (3 \times k + 4) \times (4 \times k^2 - 1)^2} = \frac{\pi^2}{8}$$

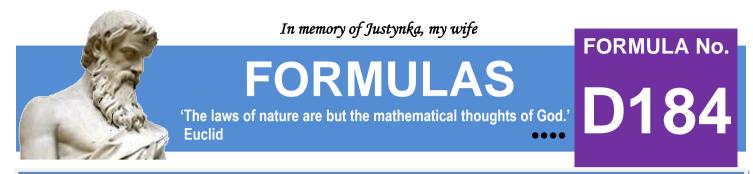


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$$\sum_{k=1}^{k=\infty} \frac{(100 \times k^5 + 300 \times k^4 + 629 \times k^3 + 814 \times k^2 + 481 \times k + 96) \times (2 \times k)!}{(k+1)^2 \times (2 \times k+1) \times (2 \times k+3) \times (5 \times k-3) \times (5 \times k+2) \times k!^2 \times 2^{4 \times k+3}} = \frac{\pi - 3}{3}$$

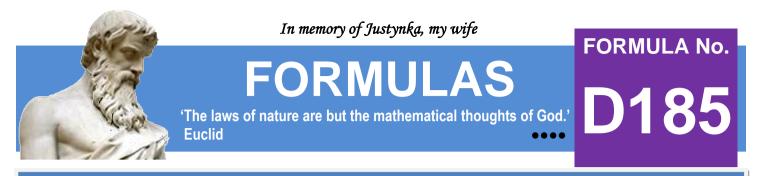


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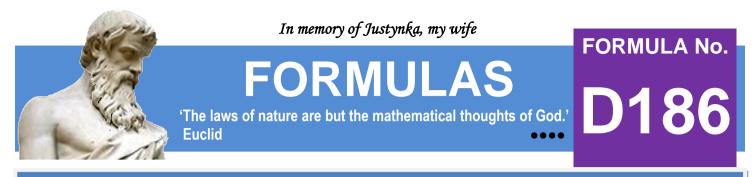
$$\sum_{k=1}^{k=\infty} \frac{[(11 \times k^2 + 27 \times k + 16) \times k! + 2 \times k^3 + 4 \times k^2 + k - 1] \times k! \times 2^{k+1}}{(2 \times k + 3)!} = 3 \times (\pi - 2)$$



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$$\sum_{k=1}^{k=\infty} \frac{k^4 + 15 \times k^3 + 96 \times k^2 + 290 \times k + 324}{(k+2)^2 \times (k+3)^2 \times (k+5) \times (k+6)} = \frac{2 \times \pi^2 - 15}{12}$$

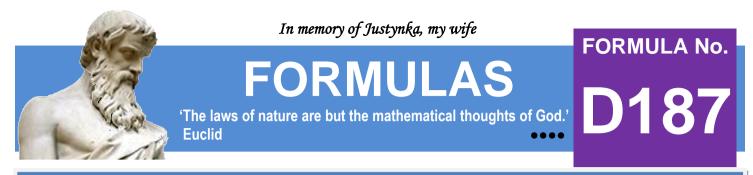


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$$\sum_{k=1}^{k=\infty} \frac{64 \times k^4 - 64 \times k^3 - 228 \times k^2 + 16 \times k - 77}{(4 \times k^2 - 1) \times (16 \times k^2 - 121) \times (16 \times k^2 - 49)} = \frac{\pi}{72}$$



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$$\sum_{k=1}^{k=\infty} \frac{1}{4 \times (2 \times k - 1)^2 - 729} = -\frac{\pi}{216}$$

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

> Thanks for: Photo nonbirinonko z Pixabay Photo Gordon Johnson z Pixabay Photo lange-adrian z Pixabay