#### In memory of Justynke, my wife

FORMULA No.

**W11** 

# FORMULAS

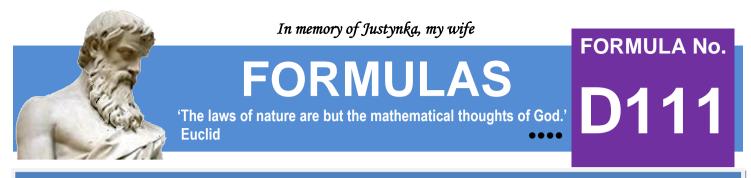
'The laws of nature are but the mathematical thoughts of God.'

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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



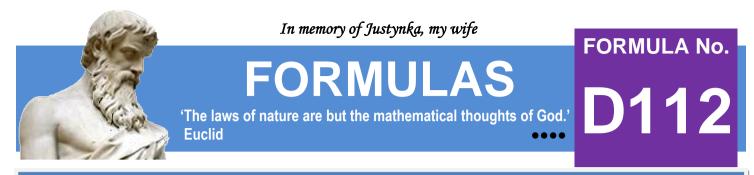


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 $k \in N$ 

$$\sum_{k=1}^{k=\infty} \frac{256 \times k^4 - 128 \times k^3 + 128 \times k^2 + 104 \times k + 15}{(4 \times k - 3) \times (4 \times k + 1) \times (16 \times k^2 - 1) \times [16 \times (k + 1)^2 - 1]} = \frac{4 - \pi}{8}$$

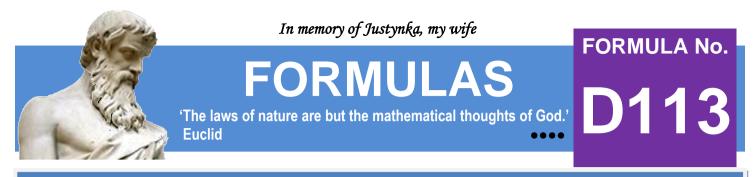


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$$\sum_{k=1}^{k=\infty} \frac{[(13 \times k^2 + 32 \times k + 19) \times k! + 2 \times k^3 + 4 \times k^2 + k - 1] \times k! \times 2^{k+2}}{(2 \times k + 3)!} = 7 \times (\pi - 2)$$

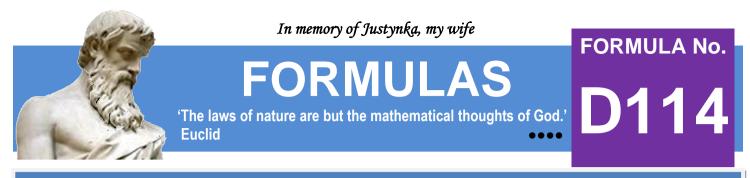


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$$\sum_{k=1}^{k=\infty} \frac{16 \times k^4 + 32 \times k^3 + 115 \times k^2 + 161 \times k + 60}{(k+1) \times (k+2) \times (4 \times k - 3) \times (16 \times k^2 - 1) \times [16 \times (k+1)^2 - 1]} = \frac{\pi - 2}{16}$$

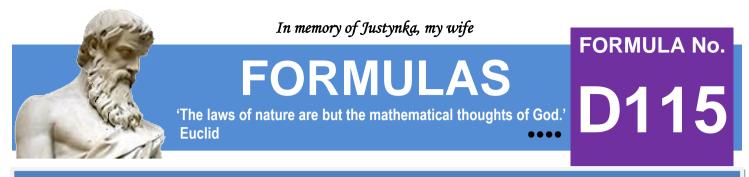


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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{16 \times k^8 + 160 \times k^7 + 800 \times k^6 + 2404 \times k^5 + 4315 \times k^4 + 4392 \times k^3 + 2232 \times k^2 + 324 \times k - 81}{k^2 \times (k+1)^2 \times (k+2)^2 \times (k+3)^2 \times (2 \times k+1)^2 \times (2 \times k+3)^2} = \frac{4 \times \pi^2 - 33}{48}$$

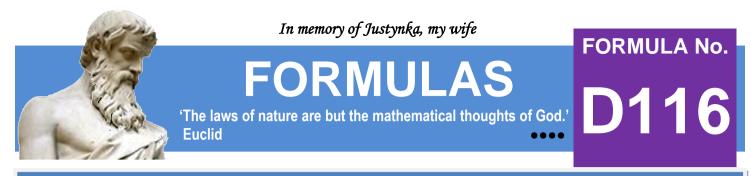


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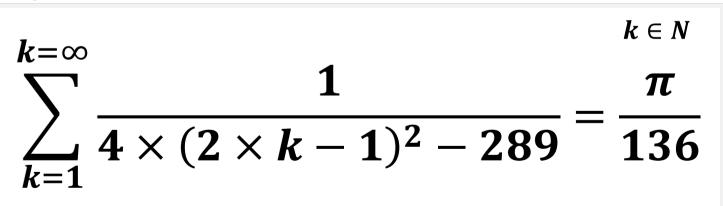
 $k \in N$ 

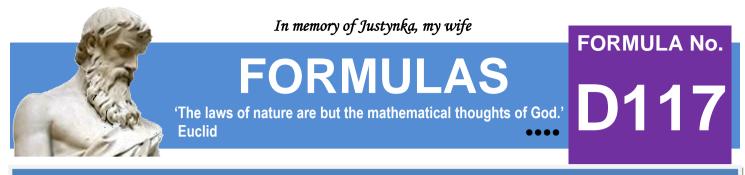
$$\sum_{k=1}^{k=\infty} \frac{256 \times k^4 - 128 \times k^3 - 4160 \times k^2 - 2136 \times k - 2565}{(4 \times k - 1) \times (4 \times k + 3) \times (16 \times k^2 - 361) \times (16 \times k^2 - 225)} = \frac{\pi}{136}$$



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 $k \in N$ 

$$\sum_{k=1}^{k=\infty} \frac{(16 \times k^5 + 76 \times k^4 + 216 \times k^3 + 317 \times k^2 + 215 \times k + 54) \times (2 \times k)!}{(k+1)^2 \times (2 \times k+1) \times (2 \times k+3) \times (4 \times k-1) \times (4 \times k+3) \times k!^2 \times 2^{4 \times k+1}} = \frac{\pi - 3}{3}$$

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