In memory of Justynke, my wife

FORMULA No.

W37

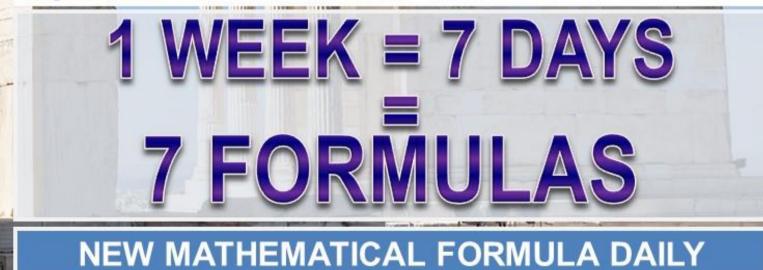
FORMULAS

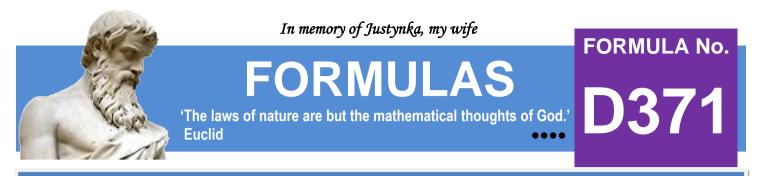
'The laws of nature are but the mathematical thoughts of God.'

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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



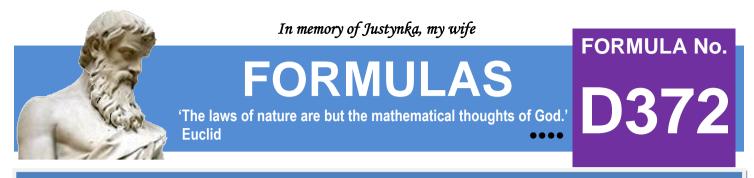


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$$k \in N$$

$$\sum_{k=1}^{k=\infty} \frac{4 \times k^5 + 24 \times k^4 + 61 \times k^3 + 116 \times k^2 + 160 \times k + 64}{(k+2)^3 \times (k+3)^3 \times (k+4)^3 \times (4 \times k^2 - 1)} = \frac{533 - 54 \times \pi^2}{54}$$

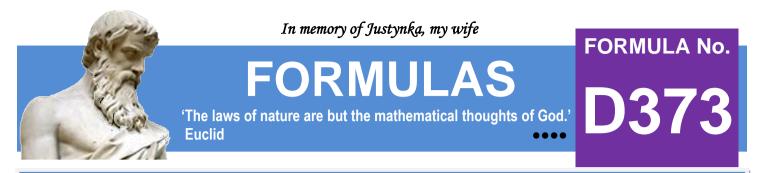


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$$\sum_{k=1}^{k=\infty} \frac{256 \times k^4 + 128 \times k^3 - 576 \times k^2 - 1448 \times k - 1925}{(4 \times k + 1) \times (4 \times k + 5) \times (16 \times k^2 - 121) \times (16 \times k^2 - 49)} = \frac{\pi}{72}$$

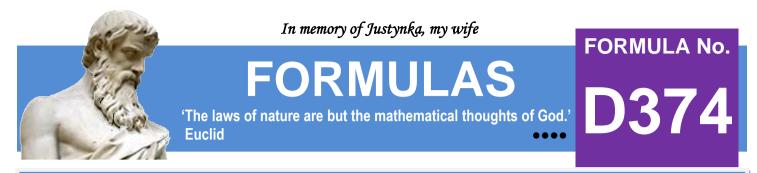


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 $k \in N$

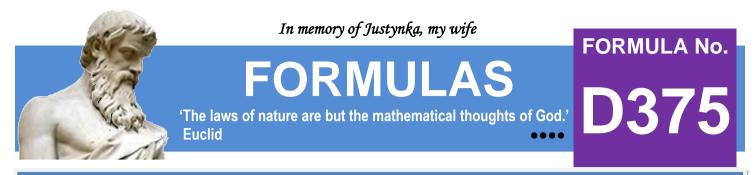
$$\sum_{k=1}^{k=\infty} \frac{k^4 + 11 \times k^3 + 64 \times k^2 + 204 \times k + 256}{(k+2)^2 \times (k+3)^3 \times (k+4)^3} = \frac{6 \times \pi^2 - 59}{18}$$



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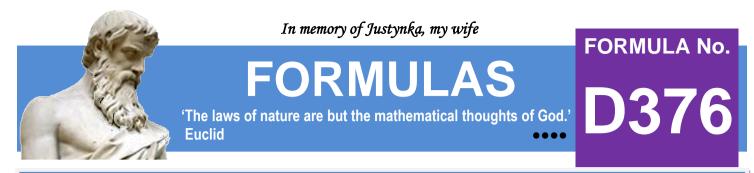
$$\sum_{k=1}^{k=\infty} \frac{3 \times k^4 + 15 \times k^3 + 27 \times k^2 + 19 \times k + 4}{k \times (k+1)^3 \times (k+2)^2} = \frac{2 \times \pi^2 - 11}{4}$$



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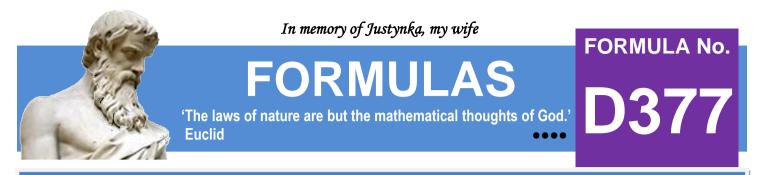
$$k \in N$$
$$\sum_{k=1}^{k=\infty} \frac{(16 \times k^5 + 36 \times k^4 + 56 \times k^3 + 67 \times k^2 + 37 \times k + 6) \times (2 \times k)!}{(k+1)^2 \times (2 \times k+1) \times (2 \times k+3) \times (4 \times k-3) \times (4 \times k+1) \times k!^2 \times 2^{4 \times k+1}} = \frac{\pi - 3}{3}$$



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$$\sum_{k=1}^{k=\infty} \frac{1}{4 \times (2 \times k - 1)^2 - 25} = \frac{\pi}{40}$$



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 $k \in N$

$$\sum_{k=1}^{k=\infty} \frac{5 \times k^4 + 25 \times k^3 + 43 \times k^2 + 27 \times k + 4}{k \times (k+1)^3 \times (k+2)^2} = \frac{10 \times \pi^2 - 57}{12}$$

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