



FORMULAS

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

FORMULA No.

W08

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

NEW MATHEMATICAL FORMULA DAILY



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D081

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$$\sum_{k=1}^{k=n} \frac{\sqrt{k \times (k+2)} - k - 1}{\sqrt{(k+1) \times (k+2)} + \sqrt{k \times (k+2)} + \sqrt{k \times (k+1)} + k + 1} \quad k, n \in \mathbb{N}$$
$$= \frac{\sqrt{n+2} - \sqrt{2} \times \sqrt{n+1}}{(\sqrt{2} + 1) \times (\sqrt{n+1} + \sqrt{n+2})}$$

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$$\sum_{k=1}^{k=n} \frac{4 \times k \times 3^k - 4 \times 3^k - 1}{16 \times 3^{2 \times k+1} + 32 \times k \times 3^k + 8 \times 3^{k+1} + 4 \times k^2 + 8 \times k + 3}$$

$k, n \in \mathbb{N}$

$$= \frac{3^{n+1} - 7 \times n - 3}{20 \times 3^{n+2} + 30 \times n + 45}$$

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$$\sum_{k=1}^{k=n} \frac{4 \times k \times 3^k - 4 \times 3^k - 5}{16 \times 3^{2 \times k+1} + 160 \times k \times 3^k + 40 \times 3^{k+1} + 100 \times k^2 + 200 \times k + 75}$$
$$= \frac{3^{n+1} - 11 \times n - 3}{4 \times 3^{n+4} + 270 \times n + 405}$$

$k, n \in \mathbb{N}$

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$$\sum_{k=1}^{k=n} \frac{\ln(k+1) - \ln k + 1}{k^2 + k \times \ln(k+1) + k \times \ln k + k + \ln k \times \ln(k+1) + \ln k} \quad k, n \in \mathbb{N}$$
$$= \frac{\ln(n+1) + n}{\ln(n+1) + n + 1}$$

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$$\sum_{k=1}^{k=n} \frac{36 \times k \times 7^k - 12 \times 7^k - 1}{64 \times 7^{2 \times k+1} + 128 \times k \times 7^k + 80 \times 7^k + 4 \times k^2 + 8 \times k + 3} \quad k, n \in \mathbb{N}$$
$$= \frac{5 \times 7^{n+1} - 43 \times n - 35}{59 \times (8 \times 7^{n+1} + 2 \times n + 3)}$$

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$$\sum_{k=1}^{k=n} \frac{17 \times k \times \ln(k+1) - 17 \times k \times \ln k + 4 \times \ln(k+1) - 21 \times \ln k + 2}{k^2 + 2 \times k \times \ln(k+1) + 2 \times k \times \ln k + k + 4 \times \ln k \times \ln(k+1) + 2 \times \ln k}$$
$$= \frac{21 \times \ln(n+1) + 2 \times n}{2 \times \ln(n+1) + n + 1}$$

$k, n \in \mathbb{N}$

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$$\sum_{k=1}^{k=n} \frac{9 \times k \times 2^{2 \times k} - 3 \times 2^{2 \times k+1} - 1}{25 \times 2^{4 \times k+2} + 25 \times k \times 2^{2 \times k+1} + 35 \times 2^{2 \times k} + 4 \times k^2 + 8 \times k + 3}$$

$k, n \in \mathbb{N}$

$$= \frac{2^{2 \times n+3} - 13 \times n - 8}{115 \times 2^{2 \times n+2} + 46 \times n + 69}$$

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We invite you every
week and every day
to our website
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Thanks for:
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