



FORMULAS

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

FORMULA No.

W09

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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D091

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

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

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

$$= \frac{\ln(n+2) - \ln 2 \times \ln(n+1) - \ln(n+1) - \ln 2}{\ln 2 \times \ln(n+2) + 2 \times \ln(n+2) + \ln 2 \times \ln(n+1) + 2 \times \ln(n+1) + 2 \times \ln 2 + 4}$$

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

$$\sum_{k=1}^{k=n} \frac{2 \times \ln(k+1) - 2 \times \ln k + 3}{9 \times k^2 + 6 \times k \times \ln(k+1) + 6 \times k \times \ln k + 15 \times k + 4 \times \ln k \times \ln(k+1) + 2 \times \ln(k+1) + 8 \times \ln k + 4}$$
$$= \frac{2 \times \ln(n+1) + 3 \times n}{4 \times (2 \times \ln(n+1) + 3 \times n + 4)}$$

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

$$\sum_{k=1}^{k=n} \frac{\ln(k+1) - \ln k + 3}{9 \times k^2 + 3 \times k \times \ln(k+1) + 3 \times k \times \ln k + 9 \times k + \ln k \times \ln(k+1) + 3 \times \ln k}$$
$$= \frac{\ln(n+1) + 3 \times n}{3 \times \ln(n+1) + 9 \times n + 9}$$

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

$$\sum_1^n \frac{2 \times \ln(k+1) - 2 \times \ln k - 1}{k^2 - 2 \times k \times \ln(k+1) - 2 \times k \times \ln k + k + 4 \times \ln k \times \ln(k+1) - 2 \times \ln k}$$
$$= \frac{2 \times \ln(n+1) - n}{-2 \times \ln(n+1) + n + 1}$$

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