

Precalculus

Compute logarithm using the rule

$$\log_a(b) + \log_a(c) = \log_a(bc)$$

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Use the properties of logarithms to evaluate the following.

Example

$$\begin{aligned}\log_4 2 + \log_4 32 &= \log_4(2 \cdot 32) \\ &= \log_4(64) \\ &= 3 \\ &\quad (\text{because } 4^3 = 64.)\end{aligned}$$

Example

$$\begin{aligned}\log_2 80 - \log_2 5 &= \log_2\left(\frac{80}{5}\right) \\ &= \log_2(16) \\ &= 4 \\ &\quad (\text{because } 2^4 = 16.)\end{aligned}$$