

## 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

$$\log_4 2 + \log_4 32$$

### Example

$$\log_2 80 - \log_2 5$$

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$$\log_4 2 + \log_4 32 = \log_4 (2 \cdot 32)$$

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

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$$\log_2 80 - \log_2 5 = \log_2 \left( \frac{80}{5} \right)$$

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