

## Evaluating Expressions

Example :

Evaluate the expression :  $\log_{\frac{1}{4}} 16^{-1} - 5 \log_5 25$

$$\begin{aligned} \log_{\frac{1}{4}} 16^{-1} - 5 \log_5 25 &= 2 \log_{\frac{1}{4}} \left(\frac{1}{4}\right) - 10 \log_5 5 \\ &= 2(1) - 10(1) \\ &= -8 \end{aligned}$$

$$\log_a b^c = c \log_a b$$

$$\log_a a = 1$$

**Evaluate each expression.**

1)  $\frac{5 \log_5 25}{\log_2 32}$

Answer

2)  $\log_8 64 \cdot \log_{\frac{1}{3}} \left(\frac{1}{27}\right)$

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3)  $\log_3 81 + 3 \log_{\frac{1}{8}}$

Answer

5)  $\log_{\frac{1}{2}} \left(\frac{1}{32}\right) \cdot 4 \log$

Answer

7)  $\log_{\frac{1}{9}} \left(\frac{1}{81}\right) - 2 \log$

Answer

9)  $\log_{\frac{1}{5}} \left(\frac{1}{25}\right) + 6 \log_3 9$

Answer

10)  $\log_{\frac{1}{3}} \left(\frac{1}{81}\right) - \log_2 8$

Answer