

Evaluating Expressions

L1DS3

Example :

Evaluate the expression : $\log_{64} 4^{-6}$

$$\begin{aligned}\log_{64} 4^{-6} &= \log_{64} 64^{-2} \\ &= -2 \log_{64} 64 \\ &= -2\end{aligned}$$

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

$$\log_a a = 1$$

Evaluate each expression.

1) $4 \log_{216} 6$

Answer

2) $\log_{\frac{1}{8}} 2^{-8}$

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3) $2 \log_{\frac{1}{2}} \left(\frac{1}{16}\right)$

Answer

5) $\log_{16} 2^{-8}$

Answer

7) $3 \log_{\frac{1}{4}} 8^{-2}$

Answer

Answer

9) $\log_{64} 8^3$

Answer

10) $3 \log_{\frac{1}{3}} 9$

Answer

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2) $\log_{\frac{1}{8}} 2^{-8}$

 $\frac{8}{3}$

3) $2 \log_{\frac{1}{2}} \left(\frac{1}{16}\right)$

Answer

 $-\frac{2}{3}$

5) $\log_{16} 2^{-8}$

Answer

 -4

7) $3 \log_{\frac{1}{4}} 8^{-2}$

Answer

9

Answer

3

9) $\log_{64} 8^3$

Answer

 $\frac{3}{2}$

10) $3 \log_{\frac{1}{3}} 9$

Answer

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