

Evaluating Expressions

Example :

Evaluate the expression : $\log_{\frac{1}{81}} \left(\frac{1}{3}\right) \cdot 2 \log_{64} 4$

$$\begin{aligned} \log_{\frac{1}{81}} \left(\frac{1}{3}\right) \cdot 2 \log_{64} 4 &= \frac{1}{4} \log_{\frac{1}{81}} \left(\frac{1}{81}\right) \cdot \frac{2}{3} \log_{64} 64 \\ &= \frac{1}{6} \end{aligned}$$

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

$$\log_a a = 1$$

Evaluate each expression.

1) $\log_{\frac{1}{36}} 6 \cdot \log_{81} 3$

Answer

2) $\log_{\frac{1}{25}} 5 + 4 \log_{32} 2$

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3) $\log_{\frac{1}{27}} 3 - \log_{16} \left(\frac{1}{4}\right)$

Answer

5) $\log_{125} 5 \cdot 3 \log_{\frac{1}{36}} 6$

Answer

7) $\frac{1}{6} \log_{16} 4 - \log_8 2$

Answer

9) $\log_{36} 6^{-4} \cdot \log_{81} 3^5$

Answer

10) $\log_{\frac{1}{64}} \left(\frac{1}{4}\right) + 5 \log_{32} 2$

Answer

Evaluating Expressions

L2DS1

Example :

Evaluate the expression : $\log_{\frac{1}{81}} \left(\frac{1}{3}\right) \cdot 2 \log_{64} 4$

$$\begin{aligned} \log_{\frac{1}{81}} \left(\frac{1}{3}\right) \cdot 2 \log_{64} 4 &= \frac{1}{4} \log_{\frac{1}{81}} \left(\frac{1}{81}\right) \cdot \frac{2}{3} \log_{64} 64 \\ &= \frac{1}{6} \end{aligned}$$

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

$$\log_a a = 1$$

Evaluate each expression.

1) $\log_{\frac{1}{36}} 6 \cdot \log_{81} 3$

Answer

2) $\log_{\frac{1}{25}} 5 + 4 \log_{32} 2$

$\frac{3}{10}$

3) $\log_{\frac{1}{27}} 3 - \log_{16} \left(\frac{1}{4}\right)$

Answer

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$\frac{1}{2}$

5) $\log_{125} 5 \cdot 3 \log_{\frac{1}{36}} 6$

Answer

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$6 \left(\frac{1}{36}\right)$

$-\frac{31}{5}$

7) $\frac{1}{6} \log_{16} 4 - \log_8 2$

Answer

$\frac{13}{12}$

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Answer

$-\frac{3}{2}$

9) $\log_{36} 6^{-4} \cdot \log_{81} 3^5$

Answer

$-\frac{5}{2}$

10) $\log_{\frac{1}{64}} \left(\frac{1}{4}\right) + 5 \log_{32} 2$

Answer

$\frac{4}{3}$