

Evaluating Expressions

L2MS1

Example :

Evaluate the expression : $\log_{\frac{1}{2}} 4^3 + \log_{\frac{1}{3}} 9$

$$\log_{\frac{1}{2}} 4^3 + \log_{\frac{1}{3}} 9 = 3 \log_{\frac{1}{2}} 2^2 + \log_{\frac{1}{3}} 3^2$$

$$= -6 \log_{\frac{1}{2}} \left(\frac{1}{2}\right) + (-2) \log_{\frac{1}{3}} \left(\frac{1}{3}\right)$$

$$= -8$$

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

$$\log_a a = 1$$

Evaluate each expression.

1) $\left(\frac{1}{2}\right) \log_{\frac{1}{5}} 25 - \log_9 3$

Answer

2) $\log_{\frac{1}{4}} \left(\frac{1}{16}\right) \cdot \log_{16} 2$

49

3) $\frac{\log_3 27}{4 \log_{\frac{1}{8}} 2}$

Answer

5) $\log_{\frac{1}{6}} 216 + \log_{\frac{1}{5}} 125$

Answer

7) $\log_{\frac{1}{7}} 49 \cdot \log_{\frac{1}{4}} 16$

Answer

9) $\log_{27} 3 + 6 \log_{\frac{1}{8}} 2$

Answer

10) $\log_8 64 - \log_{\frac{1}{6}} 36$

Answer

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Answer

2) $\log_{\frac{1}{4}} \left(\frac{1}{16}\right) \cdot \log_{16} 2$

 $\frac{1}{2}$

3) $\frac{\log_3 27}{4 \log_{\frac{1}{8}} 2}$

Answer

49

5) $\log_{\frac{1}{6}} 216 + \log_{\frac{1}{5}}$

Answer

 $-\frac{13}{3}$

7) $\log_{\frac{1}{7}} 49 \cdot \log_{\frac{1}{4}} 16$

Answer

4

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Answer

-7

9) $\log_{27} 3 + 6 \log_{\frac{1}{8}} 2$

Answer

 $-\frac{5}{3}$

10) $\log_8 64 - \log_{\frac{1}{6}} 36$

Answer

4