

Logarithm - Solve

L2MS4

Solve for x.

Example 1:

$$\begin{aligned}\log_5 \left(\frac{1}{5}\right) &= x-7 \\ (5)^{x-7} &= \left(\frac{1}{5}\right) \\ (5)^{x-7} &= 5^{-1} \\ x &= \mathbf{6}\end{aligned}$$

Example 2:

$$\begin{aligned}\log_{4x} 8^{-2} &= -6 \\ 4x^{-6} &= 8^{-2} \\ 4x^{-6} &= (2^3)^{-2} \\ x &= \mathbf{\frac{1}{2}}\end{aligned}$$

Solve for x.

1) $\log_{x-8} (6) = \frac{1}{3}$

x =

2) $\log_{125} 25 = x+6$

3) $5 \log_8 (x-5) = 10$

x =

5) $\log_2 (x+9)^{\frac{1}{6}} = 1$

x =

7) $\log_{x+9} (32) = 5$

x =

9) $\log_{\frac{1}{3}} \left(\frac{1}{27}\right) = 6x$

x =

10) $\log_2 \left(\frac{1}{64}\right) = \frac{x}{6}$

x =

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