

Logarithm - Solve

L2MS2

Solve for x.

Example 1:

$$\begin{aligned}\log_3 \left(\frac{1}{3}\right) &= x-5 \\ (3)^{x-5} &= \left(\frac{1}{3}\right) \\ (3)^{x-5} &= 3^{-1} \\ x &= 4\end{aligned}$$

Example 2:

$$\begin{aligned}\log_8 (2x)^3 &= 2 \\ 8^2 &= (2x)^3 \\ (8^2)^{\frac{1}{3}} &= 2x \\ 4 &= 2x \\ x &= 2\end{aligned}$$

Solve for x.

1) $\log_{36} 6 = x+3$

x =

2) $\log_{3x} 64 = 2$

3) $\log_{32} \left(\frac{1}{4}\right) = x-1$

x =

5) $\log_{\frac{1}{32}} \left(\frac{x}{8}\right) = \frac{1}{5}$

x =

7) $\log_{x+1} 16 = 4$

x =

9) $\log_9 (x-1) = 3$

x =

10) $\log_{2x} 2^{-4} = 2$

x =

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Example 1:

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Example 2:

$$\begin{aligned}\log_8 (2x)^3 &= 2 \\ 8^2 &= (2x)^3 \\ (8^2)^{\frac{1}{3}} &= 2x \\ 4 &= 2x \\ x &= 2\end{aligned}$$

Solve for x.

1) $\log_{36} 6 = x+3$

x = $-\frac{5}{2}$

2) $\log_{3x} 64 = 2$

3) $\log_{32} \left(\frac{1}{4}\right) = x-1$

x = $\frac{3}{5}$

5) $\log_{\frac{1}{32}} \left(\frac{x}{8}\right) = \frac{1}{5}$

x = 4

7) $\log_{x+1} 16 = 4$

x = 1

9) $\log_9 (x-1) = 3$

x = 730

10) $\log_{2x} 2^{-4} = 2$

x = $\frac{1}{8}$

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