

Logarithm - Solve

L1MS1

Solve for x.

Example 1:

$$\begin{aligned}\log_{64} 4 &= x \\ 64^x &= 4 \\ 4^{3x} &= 4 \\ x &= \frac{1}{3}\end{aligned}$$

Example 2:

$$\begin{aligned}\log_5 x^{\frac{1}{2}} &= 2 \\ 5^2 &= x^{\frac{1}{2}} \\ 5^4 &= x \\ x &= \mathbf{625}\end{aligned}$$

Solve for x.

1) $\log_4 2 = x$

x =

2) $\log_x 64^{\frac{1}{3}} = 2$

3) $\log_6 \left(\frac{1}{6}\right) = x$

x =

5) $\log_{\frac{1}{2}} \left(\frac{1}{8}\right) = x$

x =

7) $\log_x 6 = \frac{1}{2}$

x =

9) $\log_4 x = 3$

x =

10) $\log_{125} 25 = x$

x =

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$$\begin{aligned}\log_{64} 4 &= x \\ 64^x &= 4 \\ 4^{3x} &= 4 \\ x &= \frac{1}{3}\end{aligned}$$

Example 2:

$$\begin{aligned}\log_5 x^{\frac{1}{2}} &= 2 \\ 5^2 &= x^{\frac{1}{2}} \\ 5^4 &= x \\ x &= \mathbf{625}\end{aligned}$$

Solve for x.

1) $\log_4 2 = x$

x = $\frac{1}{2}$

2) $\log_x 64^{\frac{1}{3}} = 2$

3) $\log_6 \left(\frac{1}{6}\right) = x$

x = -1

5) $\log_{\frac{1}{2}} \left(\frac{1}{8}\right) = x$

x = 3

7) $\log_x 6 = \frac{1}{2}$

x = 36

x = 729

9) $\log_4 x = 3$

x = 64

10) $\log_{125} 25 = x$

x = $\frac{2}{3}$

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