

## Logarithm - Solve

L2MS3

Solve for x.

Example 1:

$$\begin{aligned} \log_{64} 4 &= x+2 \\ (64)^{x+2} &= 4 \\ 4^{3x+6} &= 4 \\ 3x+6 &= 1 \\ x &= -\frac{5}{3} \end{aligned}$$

Example 2:

$$\begin{aligned} \log_4 4x^{\frac{1}{2}} &= 2 \\ 4^2 &= (4x)^{\frac{1}{2}} \\ 4^4 &= 4x \\ x &= \mathbf{64} \end{aligned}$$

Solve for x.

1)  $\log_4 2 = x-5$

x = 

2)  $\log_{x+2} (27) = 3$

3)  $\log_2 \left(\frac{1}{4}\right) = 2x+1$

x = 

5)  $\log_{\frac{1}{3}} \left(\frac{1}{9}\right) = 4x$

x = 

7)  $\log_{x-1} (16) = \frac{1}{2}$

x = 

9)  $2 \log_4 (x-2) = 4$

x = 

10)  $\log_{128} 2 = x+3$

x = 

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Solve for x.

Example 1:

$$\begin{aligned}\log_{64} 4 &= x+2 \\ (64)^{x+2} &= 4 \\ 4^{3x+6} &= 4 \\ 3x+6 &= 1 \\ x &= -\frac{5}{3}\end{aligned}$$

Example 2:

$$\begin{aligned}\log_4 4x^{\frac{1}{2}} &= 2 \\ 4^2 &= (4x)^{\frac{1}{2}} \\ 4^4 &= 4x \\ x &= \mathbf{64}\end{aligned}$$

Solve for x.

1)  $\log_4 2 = x-5$

x =  $\frac{11}{2}$

2)  $\log_{x+2} (27) = 3$

3)  $\log_2 \left(\frac{1}{4}\right) = 2x+1$

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

5)  $\log_{\frac{1}{3}} \left(\frac{1}{9}\right) = 4x$

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

7)  $\log_{x-1} (16) = \frac{1}{2}$

x =  $257$

9)  $2 \log_4 (x-2) = 4$

x =  $18$

10)  $\log_{128} 2 = x+3$

x =  $-\frac{20}{7}$

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