Name : _____ Score : _____

Logarithm - Solve

L1MS3

Solve for x.

Example 1:

$$\log_3\left(\frac{1}{3}\right) = x$$
$$3^x = \left(\frac{1}{3}\right)$$
$$3^x = 3^{-1}$$
$$x = -1$$

Example 2:

$$\log_{25} 5^{-3} = x$$
$$25^x = 5^{-3}$$
$$5^{2x} = 5^{-3}$$
$$x = -\frac{3}{2}$$

Solve for x.

1) $\log_{49} 7 = x$

x = _____

2) $\log_x 81^{\frac{1}{2}} = 2$

3) $\log_{81}\left(\frac{1}{3}\right) = x$

x = _____

5) $\log_{\frac{1}{32}}\left(\frac{1}{2}\right) = x$

x = _____

7) $\log_x 5 = \left(\frac{1}{2}\right)$

x = _____

9) $\log_8 x = 3$

x = _____

10) $\log_x 2^{-4} = -1$

x = _____

Name : _____ **Answer key** Score : _____

L1MS3

Logarithm - Solve

Solve for x.

Example 1:

$\log_3 \left(\frac{1}{3}\right) = x$

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

$3^x = 3^{-1}$

$x = -1$

Example 2:

$\log_{25} 5^{-3} = x$

$25^x = 5^{-3}$

$5^{2x} = 5^{-3}$

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

Solve for x.

1) $\log_{49} 7 = x$

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

2) $\log_x 81^{\frac{1}{2}} = 2$

3) $\log_{81} \left(\frac{1}{3}\right) = x$

x = $-\frac{1}{4}$

5) $\log_{\frac{1}{32}} \left(\frac{1}{2}\right) = x$

x = $\frac{1}{5}$

7) $\log_x 5 = \left(\frac{1}{2}\right)$

x = 25

x = 343

9) $\log_8 x = 3$

x = 512

10) $\log_x 2^{-4} = -1$

x = 16