

## Inverses of Logarithms

**Find the inverse of each function.**

1)  $y = \log(-2x)$

2)  $y = \log_{\frac{1}{4}} x^5$

3)  $y = \log_{\frac{1}{5}} x - 4$

4)  $y = \log_3(4^x - 4)$

5)  $y = \log_2(3x^3)$

6)  $y = -7 \log_6(-3x)$

7)  $y = \log_2(x + 5) - 9$

8)  $y = \log_6(4x + 4)$

9)  $y = \log_5(3x^3 - 6)$

10)  $y = 6 \log_2(2^x - 7)$

11)  $y = 6 \log_5(-4x) - 7$

12)  $y = 6^{\frac{x}{4}}$

$$13) y = \frac{5^{1+x} + 1}{5^x}$$

$$14) y = 5^x - 8$$

$$15) y = 5^{\frac{x}{2}}$$

$$16) y = -\frac{1}{4^{1+x}}$$

$$17) y = \left(\frac{4^x}{-2}\right)^{\frac{1}{3}}$$

$$18) y = (4^x - 1)^{\frac{1}{5}}$$

$$19) y = (5^x - 7)^{\frac{1}{4}}$$

$$20) y = \left(\left(\frac{1}{5}\right)^x - 2\right)^{\frac{1}{2}}$$

$$21) y = \left(\frac{3^x - 8}{-3}\right)^{\frac{1}{4}}$$

$$22) y = \log_5 \frac{3^x + 9}{2}$$

$$23) y = \left(\frac{3^x - 4}{-2}\right)^{\frac{1}{2}}$$

$$24) y = \left(\frac{3^x - 9}{3}\right)^{\frac{1}{5}}$$

## Inverses of Logarithms

Find the inverse of each function.

1)  $y = \log(-2x)$

$$y = -\frac{10^x}{2}$$

2)  $y = \log_{\frac{1}{4}} x^5$

$$y = \frac{1}{\sqrt[5]{4^x}}$$

3)  $y = \log_{\frac{1}{5}} x - 4$

$$y = \frac{1}{5^{x+4}}$$

4)  $y = \log_3(4^x - 4)$

$$y = \log_4(3^x + 4)$$

5)  $y = \log_2(3x^3)$

$$y = \left(\frac{2^x}{3}\right)^{\frac{1}{3}}$$

6)  $y = -7 \log_6(-3x)$

$$y = \frac{6^{-\frac{x}{7}}}{-3}$$

7)  $y = \log_2(x+5) - 9$

$$y = 2^{x+9} - 5$$

8)  $y = \log_6(4x+4)$

$$y = \frac{6^x - 4}{4}$$

9)  $y = \log_5(3x^3 - 6)$

$$y = \left(\frac{5^x + 6}{3}\right)^{\frac{1}{3}}$$

10)  $y = 6 \log_2(2^x - 7)$

$$y = \log_2\left(2^{\frac{x}{6}} + 7\right)$$

11)  $y = 6 \log_5(-4x) - 7$

$$y = \frac{5^{\frac{x+7}{6}}}{-4}$$

12)  $y = 6^{\frac{x}{4}}$

$$y = \log_6 x^4$$

$$13) y = \frac{5^{1+x} + 1}{5^x}$$

$$y = \log_{\frac{1}{5}}(x - 5)$$

$$14) y = 5^x - 8$$

$$y = \log_5(x + 8)$$

$$15) y = 5^{\frac{x}{2}}$$

$$y = \log_5 x^2$$

$$16) y = -\frac{1}{4^{1+x}}$$

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

$$17) y = \left(\frac{4^x}{-2}\right)^{\frac{1}{3}}$$

$$y = \log_4 -2x^3$$

$$18) y = (4^x - 1)^{\frac{1}{5}}$$

$$y = \log_4(x^5 + 1)$$

$$19) y = (5^x - 7)^{\frac{1}{4}}$$

$$y = \log_5(x^4 + 7)$$

$$20) y = \left(\left(\frac{1}{5}\right)^x - 2\right)^{\frac{1}{2}}$$

$$y = \log_{\frac{1}{5}}(x^2 + 2)$$

$$21) y = \left(\frac{3^x - 8}{-3}\right)^{\frac{1}{4}}$$

$$y = \log_3(-3x^4 + 8)$$

$$22) y = \log_5 \frac{3^x + 9}{2}$$

$$y = \log_3(2 \cdot 5^x - 9)$$

$$23) y = \left(\frac{3^x - 4}{-2}\right)^{\frac{1}{2}}$$

$$y = \log_3(-2x^2 + 4)$$

$$24) y = \left(\frac{3^x - 9}{3}\right)^{\frac{1}{5}}$$

$$y = \log_3(3x^5 + 9)$$