

## Inverses of Logarithms

**Find the inverse of each function.**

1)  $y = 2 \log_x 3$

2)  $y = \log_6 3^x$

3)  $y = \log_2 x^3$

4)  $y = \log_5 (-2x)$

5)  $y = \log_6 (3x)$

6)  $y = \log_4 x + 10$

7)  $y = \log_2 x + 6$

8)  $y = \log_6 x - 7$

9)  $y = \log_x 2 - 6$

10)  $y = 4 \log_x 2$

11)  $y = \log_5 (x + 5)$

12)  $y = -6 \log_x 5$

$$13) y = 10^{\frac{x}{2}}$$

$$14) y = 4^{\frac{x}{3}}$$

$$15) y = 3^x + 4$$

$$16) y = x$$

$$17) y = 4^{\frac{x}{2}}$$

$$18) y = 6^x + 2$$

$$19) y = \left( \frac{\left( \frac{1}{4} \right)^x - 5}{-2} \right)^{\frac{1}{3}}$$

$$20) y = \left( \frac{5^x - 9}{-3} \right)^{\frac{1}{2}}$$

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

$$22) y = \left( \frac{e^x - 10}{4} \right)^{\frac{1}{5}}$$

$$23) y = \left( \frac{6^x + 10}{-2} \right)^{\frac{1}{3}}$$

$$24) y = \left( \frac{5^x + 8}{4} \right)^{\frac{1}{3}}$$

## Inverses of Logarithms

**Find the inverse of each function.**

1)  $y = 2 \log_x 3$

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

2)  $y = \log_6 3^x$

$$y = \log_3 6^x$$

3)  $y = \log_2 x^3$

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

4)  $y = \log_5 (-2x)$

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

5)  $y = \log_6 (3x)$

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

6)  $y = \log_4 x + 10$

$$y = 4^{x-10}$$

7)  $y = \log_2 x + 6$

$$y = 2^{x-6}$$

8)  $y = \log_6 x - 7$

$$y = 6^{x+7}$$

9)  $y = \log_x 2 - 6$

$$y = 2^{\frac{1}{x+6}}$$

10)  $y = 4 \log_x 2$

$$y = 2^{\frac{4}{x}}$$

11)  $y = \log_5 (x + 5)$

$$y = 5^x - 5$$

12)  $y = -6 \log_x 5$

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

13)  $y = 10^{\frac{x}{2}}$

$y = \log x^2$

14)  $y = 4^{\frac{x}{3}}$

$y = \log_4 x^3$

15)  $y = 3^x + 4$

$y = \log_3 (x - 4)$

16)  $y = x$

$y = x$

17)  $y = 4^{\frac{x}{2}}$

$y = \log_4 x^2$

18)  $y = 6^x + 2$

$y = \log_6 (x - 2)$

19)  $y = \left( \frac{\left( \frac{1}{4} \right)^x - 5}{-2} \right)^{\frac{1}{3}}$

$y = \log_{\frac{1}{4}} (-2x^3 + 5)$

20)  $y = \left( \frac{5^x - 9}{-3} \right)^{\frac{1}{2}}$

$y = \log_5 (-3x^2 + 9)$

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

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

22)  $y = \left( \frac{e^x - 10}{4} \right)^{\frac{1}{5}}$

$y = \ln (4x^5 + 10)$

23)  $y = \left( \frac{6^x + 10}{-2} \right)^{\frac{1}{3}}$

$y = \log_6 (-2x^3 - 10)$

24)  $y = \left( \frac{5^x + 8}{4} \right)^{\frac{1}{3}}$

$y = \log_5 (4x^3 - 8)$