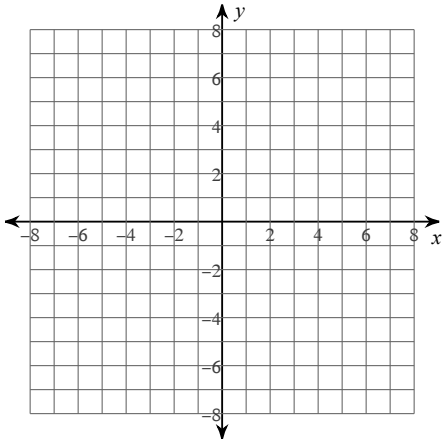


Assignment

Date _____ Period _____

Identify the domain and range of each. Then sketch the graph.

1) $y = \log_6(x - 1) - 1$

**Find the inverse of each function.**

2) $y = \ln(x + 8) - 5$

3) $y = -10 \ln(4x)$

4) $y = -10 \ln 4^x$

5) $y = -3 \ln x^4$

Expand each logarithm.

6) $\log_2 \left(\frac{a}{b^2} \right)^3$

7) $\log_8 (11^3 \sqrt[3]{10})$

8) $\log_3 \left(\frac{a^4}{b} \right)^5$

Evaluate each expression.

9) $\log_2 8$

10) $\log_2 64$

11) $\log_5 25$

12) $\log_7 49$

Solve each equation.

13) $\log_8 x - \log_8 (x - 3) = \log_8 67$

14) $\log_3 (x + 7) - \log_3 5 = 3$

15) $\log_3 (x - 6) - \log_3 x = 3$

16) $\log_5 -4x + \log_5 10 = 3$

17) $\log_3 x - \log_3 (x - 5) = 1$

18) $7 \ln (r - 9) = -7$

19) $\ln -9b + 4 = 2$

20) $\ln 6b + 10 = 10$

21) $-5 \ln (m - 6) = -5$

22) $\log (-5n - 6) = \log (6 - 2n)$

23) $\log (-5v - 3) = \log (9 - 3v)$

24) $\log (-b + 7) = \log (-4b - 7)$

25) $\log (-3k - 1) = \log (5k + 7)$

Solve each equation. Round your answers to the nearest ten-thousandth.

26) $13^{n-7.7} + 8 = 32$

27) $-6.1 \cdot 5^{a+4} = -5$

28) $-2e^{n-10} = -40$

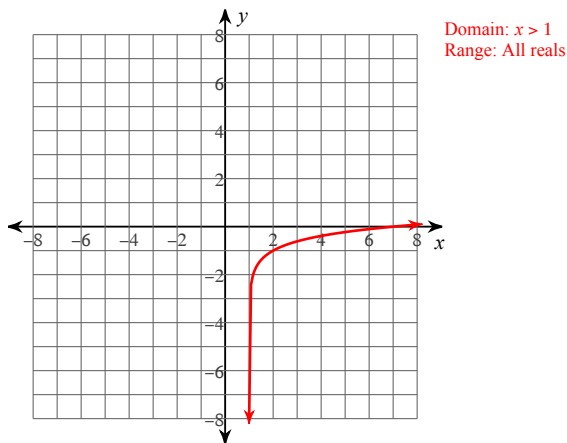
29) $-5e^{7v} = -40$

Assignment

Date _____ Period _____

Identify the domain and range of each. Then sketch the graph.

1) $y = \log_6(x - 1) - 1$



Find the inverse of each function.

2) $y = \ln(x + 8) - 5$

$$y = e^{x+5} - 8$$

3) $y = -10 \ln(4x)$ $y = \frac{e^{-\frac{x}{10}}}{4}$

4) $y = -10 \ln 4^x$

$$y = \log_4 e^{-\frac{x}{10}}$$

5) $y = -3 \ln x^4$

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

Expand each logarithm.

6) $\log_2 \left(\frac{a}{b^2}\right)^3$

$$3 \log_2 a - 6 \log_2 b$$

7) $\log_8(11^3 \sqrt[3]{10})$

$$3 \log_8 11 + \frac{\log_8 10}{3}$$

8) $\log_3 \left(\frac{a^4}{b}\right)^5$

$$20 \log_3 a - 5 \log_3 b$$

Evaluate each expression.

9) $\log_2 8$

$$3$$

10) $\log_2 64$

$$6$$

11) $\log_5 25$

$$2$$

12) $\log_7 49$

$$2$$

Solve each equation.

$$13) \log_8 x - \log_8 (x - 3) = \log_8 67 \left\{ \frac{67}{22} \right\}$$

$$15) \log_3 (x - 6) - \log_3 x = 3$$

No solution.

$$17) \log_3 x - \log_3 (x - 5) = 1 \left\{ \frac{15}{2} \right\}$$

$$19) \ln -9b + 4 = 2 \left\{ -\frac{1}{9e^2} \right\}$$

$$21) -5 \ln (m - 6) = -5 \left\{ e + 6 \right\}$$

$$23) \log (-5v - 3) = \log (9 - 3v) \left\{ -6 \right\}$$

$$25) \log (-3k - 1) = \log (5k + 7) \left\{ -1 \right\}$$

$$14) \log_3 (x + 7) - \log_3 5 = 3 \left\{ 128 \right\}$$

$$16) \log_5 -4x + \log_5 10 = 3 \left\{ -\frac{25}{8} \right\}$$

$$18) 7 \ln (r - 9) = -7 \left\{ \frac{9e + 1}{e} \right\}$$

$$20) \ln 6b + 10 = 10 \left\{ \frac{1}{6} \right\}$$

$$22) \log (-5n - 6) = \log (6 - 2n) \left\{ -4 \right\}$$

$$24) \log (-b + 7) = \log (-4b - 7) \left\{ -\frac{14}{3} \right\}$$

Solve each equation. Round your answers to the nearest ten-thousandth.

$$26) 13^{n-7.7} + 8 = 32 \left\{ 8.939 \right\}$$

$$27) -6.1 \cdot 5^{a+4} = -5 \left\{ -4.1236 \right\}$$

$$28) -2e^{n-10} = -40 \left\{ 12.9957 \right\}$$

$$29) -5e^{7v} = -40 \left\{ 0.2971 \right\}$$