

2.1 - 2.5 Additional Practice

Write each equation in its exponential form.

a. $2 = \log_7 x$

$$7^2 = x$$

b. $3 = \log_{10}(x + 8)$

$$10^3 = x + 8$$

c. $\log_5 125 = x$

$$5^x = 125$$

Rewrite into logarithms:

7. $2^4 = 16$

$$\log_2 16 = 4$$

8. $\sqrt{64} = 8$

$$\log_{64} 8 = \frac{1}{2}$$

9. $e^4 = 54.60$

$$\ln 54.6 = 4$$

Evaluate without a calculator:

10. $\log_5 25$

$$5^x = 25$$
~~$$\log_5 25 = x$$~~

$$x = 2$$

11. $\log_3 \frac{1}{81}$

$$3^x = \frac{1}{81}$$

$$x = -4$$

12. $\ln e^{-2}$

$$\log_e e^{-2} = x$$

$$x = -2$$

Evaluate the following logarithms without a calculator:

39. $\log 1000 = 3$

42. $\log_4 \frac{1}{16} = -2$

45. $\ln 1 = 0$

40. $\log_9 3 = \frac{1}{2}$

43. $\ln e^7 = 7$

46. $\ln e^{-3} = -3$

41. $\log_3 \frac{1}{9} = -2$

44. $\log_a \frac{1}{a} = -1$

Which of the following functions represents $f(x) = 9^x$ after a reflection on the x-axis and a vertical translation 5 units down?

a. $g(x) = -(9^{x-5})$

c. $g(x) = -(9^x) - 5$

b. $g(x) = 9^{-x+5}$

d. $g(x) = -(9^x) + 5$

Describe the transformations and state the domain and range of the following:

$$y = -3(2^{x+6}) - 1$$

① Reflection over x
 ② translation left 6 and down 1
 ③ V. Stretch by 3

Domain $(-\infty, \infty)$ Range $(-\infty, -1)$