

# 6.3

## Practice A

In Exercises 1–3, determine whether the equation represents an exponential function. Explain.

1.  $y = 9x$

2.  $y = 2(3)^x$

3.  $y = (-2)^x$

In Exercises 4 and 5, determine whether the table represents a *linear* or an *exponential* function. Explain.

4.

x	y
1	3
2	9
3	27
4	81

5.

x	y
1	4
2	6
3	8
4	10

In Exercises 6 and 7, evaluate the function for the given value of x.

6.  $y = 2(4)^x; x = -2$

7.  $f(x) = -3(5)^x; x = 3$

In Exercises 8–10, graph the function. Compare the graph to the graph of the parent function. Describe the domain and range of f.

8.  $f(x) = -2(0.5)^x$

9.  $f(x) = -\left(\frac{1}{3}\right)^x$

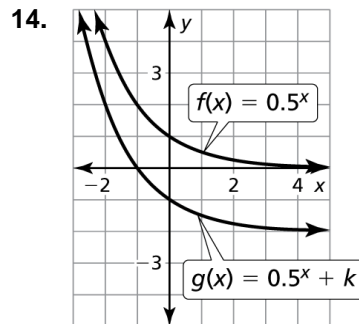
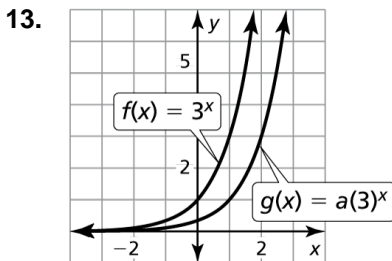
10.  $f(x) = \frac{1}{2}(6)^x$

In Exercises 11 and 12, graph the function. Describe the domain and range.

11.  $f(x) = 2^x + 3$

12.  $f(x) = 3^{x-2}$

In Exercises 13 and 14, compare the graphs. Find the value of h, k, or a.



15. Graph the function  $f(x) = 2^x$ . Then graph  $g(x) = 3(2)^x$ . How are the y-intercept, domain, and range affected by the transformation?

## 6.3 Practice B

In Exercises 1–3, determine whether the equation represents an exponential function. Explain.

1.  $y = -6^x$

2.  $y = 5(1)^x$

3.  $y = 7x^3$

In Exercises 4 and 5, determine whether the table represents a *linear* or an *exponential* function. Explain.

4.

x	y
1	5
2	2
3	-1
4	-4

5.

x	y
1	24
2	12
3	6
4	3

In Exercises 6 and 7, evaluate the function for the given value of  $x$ .

6.  $y = (1.2)^x$ ;  $x = 2$

7.  $f(x) = \frac{1}{2}(8)^x$ ;  $x = -2$

In Exercises 8–10, graph the function. Compare the graph to the graph of the parent function. Describe the domain and range of  $f$ .

8.  $f(x) = 5\left(\frac{1}{4}\right)^x$

9.  $f(x) = -\frac{1}{3}(3)^x$

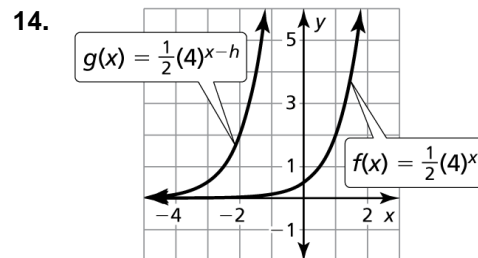
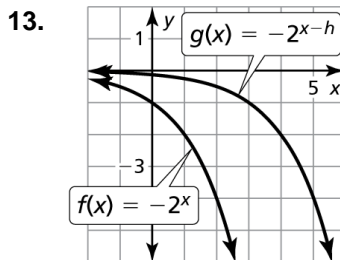
10.  $f(x) = \frac{4}{3}(6)^x$

In Exercises 11 and 12, graph the function. Describe the domain and range.

11.  $f(x) = -6\left(\frac{1}{3}\right)^{x-1} - 4$

12.  $f(x) = 2(5)^{x+1} - 3$

In Exercises 13 and 14, compare the graphs. Find the value of  $h$ ,  $k$ , or  $a$ .



15. Graph the function  $f(x) = 2^x$ . Then graph  $g(x) = 2^{x-3}$ . How are the  $y$ -intercept, domain, and range affected by the transformation?