7-6   **Practice**   *Form K*

Exponential Functions

Determine whether each table represents a linear or an exponential function. Explain. Remember that an exponential function exists when you have a constant ratio between the *y* values and a constant difference between the *x* values.

7B: Do not do 1-2

1.

x	1	2	3	4	5	6
y	2	4	8	16	32	64

2.

x	1	2	3	4	5	6
y	1	4	7	10	13	16

Determine whether each equation represents a linear or an exponential function. Remember, an exponential function takes the form $y = a \cdot b^x$ where $a \neq 0$ and $b > 0, b \neq 1$.

3. $y = 3\,x^2$

4. $y = 4 \cdot \left(\dfrac{1}{5}\right)^x$

5. $y = 5x - 8$

6. $y = 5 \cdot 1.07^x$

Evaluate each function for the given value.

7. $y = 2^x$ for $x = 3$

8. $f(x) = 6 \cdot 3^x$ for $x = 5$

9. $h(t) = 6 \cdot 1.07^t$ for $t = 8$

10. $y = -2 \cdot 7^x$ for $x = 0$

Graph each exponential function.

9. $y = 2^x$

10. $y = 3 \cdot 2^x$

11. $y = 5^x$

12. $y = 3 \cdot 5^x$

13. Writing Discuss the similarities and differences between the four graphs that you sketched in Exercises 9–12.

Solve each equation.

14. $2^x = 16$

15. $10 \cdot 3^x = 90$

16. $5^x - 4 = 21$

17. $4^x + 6 = 70$