

# 8.6 EXERCISES

## HOMWORK KEY

 = **WORKED-OUT SOLUTIONS**  
on p. WS1 for Exs. 7 and 49

 = **TAKS PRACTICE AND REASONING**  
Exs. 19, 36, 49, 54, and 55

 = **MULTIPLE REPRESENTATIONS**  
Ex. 50

### SKILL PRACTICE

1. **VOCABULARY** What is the decay factor in the exponential decay model  $y = a(1 - r)^t$ ?

2. **WRITING** Explain how you can tell if a graph represents *exponential growth* or *exponential decay*.

**WRITING FUNCTIONS** Tell whether the table represents an exponential function. If so, write a rule for the function.

3.

<b>x</b>	-1	0	1	2
<b>y</b>	2	8	32	128

4.

<b>x</b>	-1	0	1	2
<b>y</b>	50	10	2	0.4

5.

<b>x</b>	-1	0	1	2
<b>y</b>	6	2	$\frac{2}{3}$	$\frac{2}{9}$

6.

<b>x</b>	-1	0	1	2
<b>y</b>	-11	-7	-3	1

**GRAPHING FUNCTIONS** Graph the function and identify its domain and range.

7.  $y = \left(\frac{1}{5}\right)^x$

8.  $y = \left(\frac{1}{6}\right)^x$

9.  $y = \left(\frac{2}{3}\right)^x$

10.  $y = \left(\frac{3}{4}\right)^x$

11.  $y = \left(\frac{4}{5}\right)^x$

12.  $y = \left(\frac{3}{5}\right)^x$

13.  $y = (0.3)^x$

14.  $y = (0.5)^x$

15.  $y = (0.1)^x$

16.  $y = (0.9)^x$

17.  $y = (0.7)^x$

18.  $y = (0.25)^x$

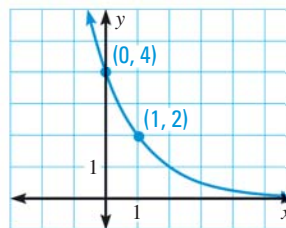
19.  **TAKS REASONING** The graph of which function is shown?

(A)  $y = (0.25)^x$

(B)  $y = (0.5)^x$

(C)  $y = 0.25 \cdot (0.5)^x$

(D)  $y = 4 \cdot (0.5)^x$



**COMPARING FUNCTIONS** Graph the function. Compare the graph with the graph of  $y = \left(\frac{1}{4}\right)^x$ .

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

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

22.  $y = \frac{1}{2} \cdot \left(\frac{1}{4}\right)^x$

23.  $y = \frac{1}{3} \cdot \left(\frac{1}{4}\right)^x$

24.  $y = 0.2 \cdot \left(\frac{1}{4}\right)^x$

25.  $y = 1.5 \cdot \left(\frac{1}{4}\right)^x$

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

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

28.  $y = -\frac{1}{2} \cdot \left(\frac{1}{4}\right)^x$

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

30.  $y = -0.2 \cdot \left(\frac{1}{4}\right)^x$

31.  $y = -1.5 \cdot \left(\frac{1}{4}\right)^x$

#### EXAMPLE 1

on p. 531  
for Exs. 3–6

#### EXAMPLE 2

on p. 532  
for Exs. 7–18

#### EXAMPLE 3

on p. 532  
for Exs. 19–31