

# 7.1 EXERCISES

## HOMEWORK KEY

- = **WORKED-OUT SOLUTIONS**  
on p. WS1 for Exs. 17, 29, and 37
- ★ = **TAKS PRACTICE AND REASONING**  
Exs. 24, 25, 32, 40, 41, 45, and 46
- ◆ = **MULTIPLE REPRESENTATIONS**  
Ex. 42

### SKILL PRACTICE

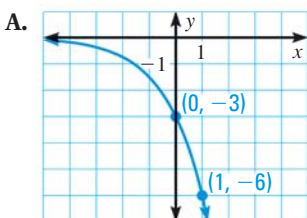
- VOCABULARY** In the exponential growth model  $y = 2.4(1.5)^x$ , identify the initial amount, the growth factor, and the percent increase.
- WRITING** What is an asymptote?

#### EXAMPLES 1 and 2

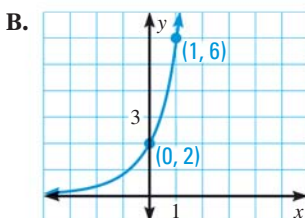
on pp. 478–479  
for Exs. 3–14

#### MATCHING GRAPHS Match the function with its graph.

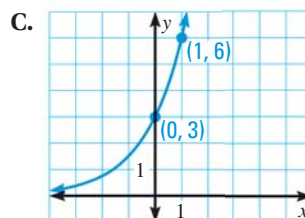
3.  $y = 3 \cdot 2^x$



4.  $y = -3 \cdot 2^x$



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



#### GRAPHING FUNCTIONS Graph the function.

6.  $y = 3^x$

7.  $y = -2^x$

8.  $f(x) = 5 \cdot 2^x$

9.  $y = 5^x$

10.  $y = 2 \cdot 4^x$

11.  $g(x) = -(1.5)^x$

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

13.  $y = \frac{1}{2} \cdot 3^x$

14.  $h(x) = -2(2.5)^x$

#### EXAMPLE 3

on p. 479  
for Exs. 15–24

#### TRANSLATING GRAPHS Graph the function. State the domain and range.

15.  $y = -3 \cdot 2^{x+2}$

16.  $y = 5 \cdot 4^x + 2$

17.  $y = 2^{x+1} + 3$

18.  $y = 3^{x-2} - 1$

19.  $y = 2 \cdot 3^{x-2} - 1$

20.  $y = -3 \cdot 4^{x-1} - 2$

21.  $f(x) = 6 \cdot 2^{x-3} + 3$

22.  $g(x) = 5 \cdot 3^{x+2} - 4$

23.  $h(x) = -2 \cdot 5^{x-1} + 1$

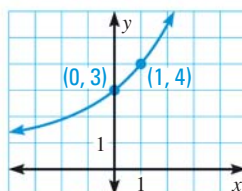
24. **TAKS PRACTICE AND REASONING** The graph of which function is shown?

(A)  $f(x) = 2(1.5)^x - 1$

(B)  $f(x) = 2(1.5)^x + 1$

(C)  $f(x) = 3(1.5)^x - 1$

(D)  $f(x) = 3(1.5)^x + 1$



25. **TAKS PRACTICE AND REASONING** The student enrollment  $E$  of a high school was 1310 in 1998 and has increased by 10% per year since then. Which exponential growth model gives the school's student enrollment in terms of  $t$ , where  $t$  is the number of years since 1998?

(A)  $E = 0.1(1310)^t$

(B)  $E = 1310(0.1)^t$

(C)  $E = 1.1(1310)^t$

(D)  $E = 1310(1.1)^t$