CHAPTER REVIEW

REVIEW KEY VOCABULARY

• exponential function, *p. 478*
• exponential growth function, *p. 478*
• growth factor, *p. 478*
• asymptote, *p. 478*

• exponential decay function, *p. 486*
• decay factor, *p. 486*
• natural base *e*, *p. 492*
• logarithm of *y* with base *b*, *p. 499*

• common logarithm, *p. 500*
• natural logarithm, *p. 500*
• exponential equation, *p. 515*
• logarithmic equation, *p. 517*

VOCABULARY EXERCISES

1. What is the asymptote of the graph of the function $y = -2\left(\dfrac{1}{4}\right)^{x+1} + 5$?

2. Identify the decay factor in the model $y = 7.2(0.89)^x$.

3. **WRITING** *Explain* the meaning of $\log_b y$.

4. Copy and complete: A logarithm with base *e* is called a(n) __?__ logarithm.

5. Is $y = (1.4)^x$ an *exponential function* or a *power function*? *Explain*.

REVIEW EXAMPLES AND EXERCISES

Use the review examples and exercises below to check your understanding of the concepts you have learned in each lesson of Chapter 7.
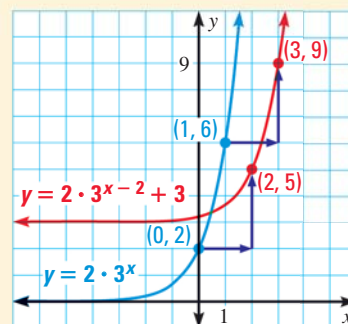
7.1 Graph Exponential Growth Functions
pp. 478–485

EXAMPLE

Graph $y = 2 \cdot 3^{x-2} + 3$. State the domain and range.

Begin by sketching the graph of $y = 2 \cdot 3^x$, which passes through (0, 2) and (1, 6). Then translate the graph right 2 units and up 3 units. Notice that the translated graph passes through (2, 5) and (3, 9).

The graph's asymptote is the line $y = 3$. The domain is all real numbers, and the range is $y > 3$.

EXERCISES

Graph the function. State the domain and range.

EXAMPLES
1, 2, 3, and 5
on pp. 478–481
for Exs. 6–9

6. $y = 5^x$

7. $y = 3(2.5)^x$

8. $f(x) = -3 \cdot 4^{x+1} - 2$

9. **FINANCE** You deposit $1500 in an account that pays 7% annual interest compounded daily. Find the balance after 2 years.