



REVIEW KEY VOCABULARY

- order of magnitude, p. 491
- zero exponent, p. 503
- negative exponent, p. 503
- scientific notation, p. 512
- exponential function, p. 520
- exponential growth, p. 522
- growth factor, growth rate, p. 522
- compound interest, p. 523
- exponential decay, p. 533
- decay factor, decay rate, p. 534

VOCABULARY EXERCISES

1. Copy and complete: The function $y = 1200(0.3)^t$ is an exponential ? function, and the base 0.3 is called the ?.
2. **WRITING** Explain how you can tell whether a table represents a linear function or an exponential function.

Tell whether the function represents exponential growth or exponential decay. Explain.

3. $y = 3(0.85)^x$

4. $y = \frac{1}{2}(1.01)^x$

5. $y = 2(2.1)^x$

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 8.

8.1

Apply Exponent Properties Involving Products

pp. 489–494

EXAMPLE

Simplify $(3y^3)^4 \cdot y^5$.

$$\begin{aligned}(3y^3)^4 \cdot y^5 &= 3^4 \cdot (y^3)^4 \cdot y^5 \\ &= 81 \cdot y^{12} \cdot y^5 \\ &= 81y^{17}\end{aligned}$$

Power of a product property

Power of a power property

Product of powers property

EXERCISES

Simplify the expression.

6. $4^4 \cdot 4^3$

7. $(-3)^7(-3)$

8. $z^3 \cdot z^5 \cdot z^5$

9. $(y^4)^5$

10. $[(-7)^4]^4$

11. $[(b + 2)^8]^3$

12. $(6^4 \cdot 31)^5$

13. $-(8xy)^2$

14. $(2x^2)^4 \cdot x^5$

15. **EARTH SCIENCE** The order of magnitude of the mass of Earth's atmosphere is 10^{18} kilograms. The order of magnitude of the mass of Earth's oceans is 10^3 times greater. What is the order of magnitude of the mass of Earth's oceans?

EXAMPLES

1, 2, 3, 4,
and 5on pp. 489–491
for Exs. 6–15