# READY TO GO ON?

CHAPTER 7

SECTION 7A

## Quiz for Lessons 7-1 Through 7-4

### 7-1 Integer Exponents

**Evaluate each expression for the given value(s) of the variable(s).**

1. $t^{-6}$ for $t = 2$
2. $n^{-3}$ for $n = -5$
3. $x^{-3}y$ for $x = 4$ and $y = -2$
4. $p^0$ for $p = 9$
5. $(5 - d)^{-7}$ for $d = 6$
6. $r^0 s^{-2}$ for $r = 8$ and $s = 10$

**Simplify.**

7. $5k^{-3}$
8. $\dfrac{x^4}{y^{-6}}$
9. $8f^{-4}\,g^0$
10. $\dfrac{a^{-3}}{b^{-2}}$

11. **Measurement** Metric units can be written in terms of a base unit. The table shows some of these equivalencies. Simplify each expression.

| Selected Metric Prefixes | | | | | |
|---|---|---|---|---|---|
| Milli- | Centi- | Deci- | Deka- | Hecto- | Kilo- |
| $10^{-3}$ | $10^{-2}$ | $10^{-1}$ | $10^{1}$ | $10^{2}$ | $10^{3}$ |

### 7-2 Powers of 10 and Scientific Notation

12. Find the value of $10^4$.
13. Write 0.0000001 as a power of 10.
14. Write 100,000,000,000 as a power of 10.
15. Find the value of $82.1 \times 10^4$.
16. **Measurement** The lead in a mechanical pencil has a diameter of 0.5 mm. Write this number in scientific notation.

### 7-3 Multiplication Properties of Exponents

**Simplify.**

17. $2^2 \cdot 2^5$
18. $3^5 \cdot 3^{-3}$
19. $p^4 \cdot p^5$
20. $a^3 \cdot a^{-6} \cdot a^{-2}$
21. **Biology** A swarm of locusts was estimated to contain $2.8 \times 10^{10}$ individual insects. If each locust weighs about 2.5 grams, how much did this entire swarm weigh? Write your answer in scientific notation and in standard form.

**Simplify.**

22. $(3x^4)^3$
23. $(m^3n^2)^5$
24. $(-4d^7)^2$
25. $(cd^6)^3 \cdot (c^5d^2)^2$

### 7-4 Division Properties of Exponents

**Simplify.**

26. $\dfrac{6^9}{6^7}$
27. $\dfrac{12a^5}{3a^2}$
28. $\dfrac{x^4y^8}{x^6y^6}$
29. $\dfrac{5m^2n^4}{m^2n}$
30. $\left(\dfrac{3}{5}\right)^3$
31. $\left(\dfrac{4p^3}{2pq^4}\right)^2$
32. $\left(\dfrac{5}{6}\right)^{-2}$
33. $\left(\dfrac{x^3y^4}{xy^5}\right)^{-3}$

**Simplify each quotient and write the answer in scientific notation.**

34. $(8 \times 10^9) \div (2 \times 10^6)$
35. $(3.5 \times 10^5) \div (7 \times 10^8)$
36. $(1 \times 10^4) \div (4 \times 10^4)$