

8.6 Practice



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▶ Review & Refresh

Round the number. Write the result as the product of a single digit and a power of 10.

- 0.00000129
- 4,241,933,200
- 0.0000001801
- 879,679,466

Write the product using exponents.

- $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$
- $3 \cdot 3 \cdot 3 \cdot y \cdot y \cdot y$
- $(-2) \cdot (-2) \cdot (-2)$

▶ Concepts, Skills, & Problem Solving

MP USING TOOLS Use a graphing calculator to evaluate the function when $x = 10$. Write the number in standard form.

(See Exploration 1, p. 349.)

- $y = \left(\frac{1}{10}\right)^x$
- $y = 20^x$

WRITING NUMBERS IN SCIENTIFIC NOTATION Write the number in scientific notation.

- 0.0021
- 5,430,000
- 321,000,000
- 0.00000625
- 0.00004
- 10,700,000
- 45,600,000,000
- 0.00000000009256
- 840,000

WRITING NUMBERS IN STANDARD FORM Write the number in standard form.

- 7×10^7
- 8×10^{-3}
- 5×10^2
- 2.7×10^{-4}
- 4.4×10^{-5}
- 2.1×10^3
- 1.66×10^9
- 3.85×10^{-8}
- 9.725×10^6



- MP MODELING REAL LIFE** The U.S. Brig *Niagara*, a warship from the Battle of Lake Erie in 1813, uses about 28,300 feet of rope to operate its sails and spars. Write this number in scientific notation.
- MP MODELING REAL LIFE** The radius of a fishing line is 2.5×10^{-4} feet. Write this number in standard form. Then write your answer using inches.



Blood: 2.7×10^8 platelets per milliliter

30. **MP MODELING REAL LIFE** Platelets are cell-like particles in the blood that help form blood clots.
- How many platelets are in 3 milliliters of blood? Write your answer in standard form.
 - An adult human body contains about 5 liters of blood. How many platelets are in an adult human body?

CHOOSING APPROPRIATE UNITS Match each value with the most appropriate unit of measurement.

- | | |
|---|----------------|
| 31. height of a skyscraper: 2.6×10^2 | A. inches |
| 32. distance between two asteroids: 2.5×10^5 | B. millimeters |
| 33. depth of a bathtub: 1.6×10^1 | C. miles |
| 34. length of memory chip: 7.8×10^0 | D. meters |



35. **MP NUMBER SENSE** Describe how the value of a number written in scientific notation changes when you increase the exponent by 1.
36. **MP PROBLEM SOLVING** The area of the Florida Keys National Marine Sanctuary is about 9600 square kilometers. The area of the Florida Reef Tract is about 16.2% of the area of the sanctuary. What is the area of the Florida Reef Tract? Write your answer in scientific notation.
37. **MP REASONING** A gigameter is 1.0×10^6 kilometers. How many square kilometers are in 5 square gigameters?
38. **MP PROBLEM SOLVING** There are about 1.4×10^9 cubic kilometers of water on Earth. About 2.5% of the water is freshwater. How much freshwater is on Earth?

39. **CRITICAL THINKING** The table shows the speed of light through each of five media. Determine in which media light travels the fastest and the slowest.

Medium	Speed
Air	6.7×10^8 mi/h
Glass	6.6×10^8 ft/sec
Ice	2.3×10^5 km/sec
Vacuum	3.0×10^8 m/sec
Water	2.3×10^{10} cm/sec

Equivalent to 1 Atomic Mass Unit
8.3×10^{-24} carat
1.66×10^{-21} milligram

40. **MP STRUCTURE** The mass of an atom or molecule is measured in atomic mass units. Which is greater, a *carat* or a *milligram*? Explain.