



CHECK Your Understanding

Examples 1, 2
(p. 130)

Write each number in standard form.

1. 7.32×10^4

3. 4.55×10^{-1}

2. 9.931×10^5

4. 6.02×10^{-4}

Examples 3, 4
(p. 131)

Write each number in scientific notation.

5. 277,000

7. 0.00004955

6. 8,785,000,000

8. 0.524

Example 5
(p. 131)

9. **BASEBALL** The table at the right lists five Major League Ballparks. List the ballparks from least to greatest capacity.

Ballpark	Team	Capacity
H. H. H. Metrodome	Minnesota Twins	4.8×10^4
Network Associates Coliseum	Oakland Athletics	4.7×10^4
The Ballpark in Arlington	Texas Rangers	4.9×10^4
Wrigley Field	Chicago Cubs	3.9×10^4
Yankee Stadium	New York Yankees	5.5×10^4

Source: www.users.bestweb.net

Exercises

HOMEWORK HELP

For Exercises	See Examples
10-13	1
14-17	2
18-21	3
22-25	4
26-29	5

Write each number in standard form.

10. 2.08×10^2

11. 3.16×10^3

12. 7.113×10^7

13. 4.265×10^6

14. 7.8×10^{-3}

15. 1.1×10^{-4}

16. 8.73×10^{-4}

17. 2.52×10^{-5}

Write each number in scientific notation.

18. 6,700

19. 43,000

20. 52,300,000

21. 147,000,000

22. 0.037

23. 0.0072

24. 0.00000707

25. 0.0000901

26. **CHEMISTRY** The table shows the mass in grams of one atom of each of several elements. List the elements in order from the least mass to greatest mass per atom.

Element	Mass per Atom
Carbon	1.995×10^{-23} g
Gold	3.272×10^{-22} g
Hydrogen	1.674×10^{-24} g
Oxygen	2.658×10^{-23} g
Silver	1.792×10^{-22} g

Source: Chemistry: Concepts and Applications

27. **GEOGRAPHY** The areas of the Great Lakes are listed in the table. Order the lakes according to their area from least to greatest.

Great Lake	Area (mi ²)
Erie	9.91×10^3
Huron	2.3×10^4
Michigan	2.23×10^4
Ontario	7.32×10^3
Superior	3.17×10^4

Source: World Book

28. Which is greater: 6.3×10^5 or 7.1×10^4 ?

29. Which is less: 4.1×10^3 or 3.2×10^7 ?

30. **HEALTH** The diameter of a red blood cell is about 7.4×10^{-4} centimeter. Write this number using standard form.

31. **TIME** The smallest unit of time is the *yoctosecond*, which equals 0.000000000000000000000001 second. Write this number in scientific notation.

32. **SPACE** The temperature of the Sun varies from $10,900^\circ\text{F}$ on the surface to 27 billion $^\circ\text{F}$ at its core. Write these temperatures in scientific notation.

33. **DINOSAURS** The *giganotosaurus* weighed about 1.6×10^4 pounds. The *microceratops* weighed about 1.1×10^1 . How many times heavier was the *giganotosaurus* than the *microceratops*? Write your answer in standard form. Round to the nearest tenth.

34. **NUMBER SENSE** Determine whether 1.2×10^5 or 1.2×10^6 is closer to one million. Explain.

35. **CHALLENGE** Compute and express each value in scientific notation.

a.
$$\frac{(130,000)(0.0057)}{0.0004}$$

b.
$$\frac{(90,000)(0.0016)}{(200,000)(30,000)(0.00012)}$$

36. **WRITING IN MATH** Determine whether a decimal times a power of 10 is *sometimes*, *always*, or *never* expressed in scientific notation. Explain.

TEST PRACTICE

7. The distance from Milford to Loveland is 326 kilometers. If there are 1,000 meters in a kilometer, use scientific notation to write the distance from Milford to Loveland in meters.

- A 3.26×10^6 m
- B 32.6×10^5 m
- C 326×10^5 m
- D 3.26×10^5 m

38. The average width of a strand of a spider web is 7.0×10^{-6} meter. Which expression represents this number in standard form?

- F 7,000,000 m
- G 700,000 m
- H 0.00007 m
- J 0.000007 m

Final Review

ALGEBRA Evaluate $a^5 \cdot b^2$ if $a = 2$ and $b = 3$. (Lesson 2-9)

Solve each equation. Check your solution. (Lesson 2-7)

$3\frac{1}{3} = 2\frac{1}{2}$

41. $-\frac{2}{3}y = 14$

42. $\frac{p}{1.3} = 2.4$

43. $-1\frac{3}{4} = n - 4\frac{1}{6}$

LANGUAGE There are about one billion people who speak Mandarin. This is 492 million more than those who speak English. How many speak English? (Lesson 1-1)