

Name:  
Instructor:

Date:  
Section:

### Practice Set 1.6

Use the choices below to fill each blank.

- |       |          |       |      |   |
|-------|----------|-------|------|---|
| left  | positive | 0, 10 | 1, 9 | < |
| right | negative | 1, 10 | 0, 9 | > |

1. A number written in the form  $a \times 10^n$  is in scientific notation, for integers  $n$ , if  $\underline{\hspace{1cm}} \leq a < \underline{\hspace{1cm}}$ .
2. To convert a number in scientific notation to decimal form, if the exponent is positive, move the decimal point in the number to the  $\underline{\hspace{3cm}}$  the same number of places as the exponent.
3. To convert a number in scientific notation to decimal form, if the exponent is negative, move the decimal point in the number to the  $\underline{\hspace{3cm}}$  the same number of places as the exponent.
4.  $-1 \times 10^n$ , for  $n > 0$  and  $n \in I$ , is a  $\underline{\hspace{2cm}}$  number.
5.  $1 \times 10^{-n}$ , for  $n > 0$  and  $n \in I$ , is a  $\underline{\hspace{2cm}}$  number.
6.  $1 \times 10^{-2}$   $\underline{\hspace{1cm}}$   $1 \times 10^{-3}$ .

Express each number in scientific notation.

- |                        |                                |
|------------------------|--------------------------------|
| 7. 5400                | 7. $\underline{\hspace{3cm}}$  |
| 8. 320                 | 8. $\underline{\hspace{3cm}}$  |
| 9. 450,000,000         | 9. $\underline{\hspace{3cm}}$  |
| 10. 0.0000000012       | 10. $\underline{\hspace{3cm}}$ |
| 11. 0.0000000000000789 | 11. $\underline{\hspace{3cm}}$ |
| 12. 0.001              | 12. $\underline{\hspace{3cm}}$ |
| 13. 92,960,000,000     | 13. $\underline{\hspace{3cm}}$ |
| 14. 0.057              | 14. $\underline{\hspace{3cm}}$ |

Express each number without exponents.

- |                             |                                |
|-----------------------------|--------------------------------|
| 15. $1.0025 \times 10^{13}$ | 15. $\underline{\hspace{3cm}}$ |
| 16. $3 \times 10^4$         | 16. $\underline{\hspace{3cm}}$ |
| 17. $1 \times 10^{-6}$      | 17. $\underline{\hspace{3cm}}$ |
| 18. $4.2 \times 10^{-3}$    | 18. $\underline{\hspace{3cm}}$ |

Express each number without exponents.

- 19.  $1.01 \times 10^8$  19. \_\_\_\_\_
- 20.  $4.56 \times 10^{-5}$  20. \_\_\_\_\_
- 21.  $1.98 \times 10^2$  21. \_\_\_\_\_
- 22.  $3.62 \times 10^{-9}$  22. \_\_\_\_\_
- 23.  $\frac{16.2 \times 10^{-6}}{8.1 \times 10^{-4}}$  23. \_\_\_\_\_
- 24.  $(3.5 \times 10^4)(2.4 \times 10^3)$  24. \_\_\_\_\_

Express each value in scientific notation.

- 25.  $(0.003)(0.000006)$  25. \_\_\_\_\_
- 26.  $\frac{42,000,000,000}{70,000}$  26. \_\_\_\_\_
- 27.  $(6.3 \times 10^6)(4.8 \times 10^3)$  27. \_\_\_\_\_
- 28.  $\frac{2.25 \times 10^9}{2.5 \times 10^8}$  28. \_\_\_\_\_

**Problem Solving**

- 29. Earth completes its  $5.85 \times 10^8$ -mile orbit around the sun in 365 days. How long would it take a spacecraft traveling 3100 miles per hour to travel the same distance? Write your answer in scientific notation. 29. \_\_\_\_\_
  
- 30. On January 26, 2010 the U.S. Census Bureau Population Clock estimated the population of the United States to be 308,556,483. On this day, the U.S. National Debt Clock reported the Outstanding Public Debt as \$12,323,190,200,000. Rounding these numbers to  $3.09 \times 10^8$  and  $\$12.3 \times 10^{12}$ , find each citizen's approximate share of this debt to the nearest dollar. Write your answer without exponents. 30. \_\_\_\_\_