

# Lesson 7 Reteach

## Compute with Scientific Notation

You can use the Product of Powers and Quotient of Powers properties to multiply and divide numbers written in scientific notation.

### Example 1

Evaluate  $(3.4 \times 10^5)(2.3 \times 10^3)$ . Express the result in scientific notation.

$$\begin{aligned}
 (3.4 \times 10^5)(2.3 \times 10^3) &= (3.4 \times 2.3)(10^5 \times 10^3) && \text{Commutative and Associative Properties} \\
 &= (7.82)(10^5 \times 10^3) && \text{Multiply 3.4 by 2.3.} \\
 &= 7.82 \times 10^{5+3} && \text{Product of Powers} \\
 &= 7.82 \times 10^8 && \text{Add the exponents.}
 \end{aligned}$$

### Example 2

Evaluate  $\frac{2.325 \times 10^4}{3.1 \times 10^4}$ . Express the result in scientific notation.

$$\begin{aligned}
 \frac{2.325 \times 10^4}{3.1 \times 10^4} &= \left(\frac{2.325}{3.1}\right)\left(\frac{10^4}{10^4}\right) && \text{Associative Property} \\
 &= (0.75)\left(\frac{10^4}{10^4}\right) && \text{Divide 2.325 by 3.1.} \\
 &= 0.75 \times 10^{4-4} && \text{Quotient of Powers} \\
 &= 0.75 \times 10^0 && \text{Subtract the exponents.} \\
 &= 0.75 \times 10^2 && \text{Write } 0.75 \times 10^2 \text{ in scientific notation.} \\
 &= 7.5 \times 10 && \text{Since the decimal point moved 1 place to the right, subtract 1 from the exponent.}
 \end{aligned}$$

### Example 3

Evaluate  $(5.24 \times 10^5) + (8.65 \times 10^6)$ . Express the result in scientific notation.

$$\begin{aligned}
 (5.24 \times 10^5) + (8.65 \times 10^6) &= (5.24 \times 10^5) + (86.5 \times 10^5) && \text{Write } 8.65 \times 10^6 \text{ as } 86.5 \times 10^5. \\
 &= (5.24 + 86.5) \times 10^5 && \text{Distributive Property} \\
 &= 91.74 \times 10^5 && \text{Add 5.24 and 86.5.} \\
 &= 9.174 \times 10^6 && \text{Write } 91.74 \times 10^5 \text{ in scientific notation.}
 \end{aligned}$$

### Exercises

Evaluate each expression. Express the result in scientific notation.

1.  $(6.7 \times 10^4)(2.9 \times 10^5)$

3.  $\frac{5.46 \times 10^5}{8.4 \times 10^3}$

2.  $(4.3 \times 10^4) + (5.21 \times 10^5)$

4.  $(9.6 \times 10^5) - (3.7 \times 10^3)$

**Lesson 7 Skills Practice** Complete only problems  
**Compute with Scientific Notation** in the boxes!!

Evaluate each expression. Express the result in scientific notation.

1.  $(5.8 \times 10^5)(6.4 \times 10^2)$

2.  $(3.92 \times 10^6)(2.2 \times 10^4)$

3.  $\frac{2.952 \times 10^6}{3.6 \times 10^3}$

4.  $\frac{2.052 \times 10^7}{5.4 \times 10^4}$

5.  $(6.9 \times 10^7) + (2.12 \times 10^5)$

6.  $(1.78 \times 10^4) + (5.35 \times 10^3)$

7.  $(8.4 \times 10^7) - (6.3 \times 10^6)$

8.  $(9.62 \times 10^5) - (2.58 \times 10^3)$

9.  $\frac{6.256 \times 10^8}{6.8 \times 10^4}$

10.  $\frac{2.888 \times 10^5}{7.22 \times 10^2}$

11.  $(3.68 \times 10^3)(2.4 \times 10^6)$

12.  $(7.2 \times 10^7)(1.82 \times 10^2)$

13.  $(6.78 \times 10^4) - (4.13 \times 10^2)$

14.  $\frac{3.024 \times 10^6}{4.8 \times 10^2}$

15.  $(5.9 \times 10^8) + (2.6 \times 10^6)$

16.  $(3.45 \times 10^7)(1.68 \times 10^4)$

17.  $(8.33 \times 10^3) + (4.1 \times 10^5)$

18.  $(6.82 \times 10^5) - (3.11 \times 10^4)$