

ALGEBRA 1 CONCEPTS AND SKILLS
CHAPTER 8, LESSON 5, EXTRA EXAMPLE

Extra Example 3 Operations with Scientific Notation

Perform the indicated operation. Write the result in scientific notation.

a. $(3.5 \times 10^3)(4.2 \times 10^6)$ b. $\frac{1.5 \times 10^2}{2 \times 10^{-5}}$ c. $(7 \times 10^4)^2$

SOLUTION

a. $(3.5 \times 10^3)(4.2 \times 10^6)$
 $= (3.5 \cdot 4.2) \times (10^3 \cdot 10^6)$ Use properties of multiplication.
 $= 14.7 \times 10^9$ Use product of powers property.
 $= (1.47 \times 10^1) \times 10^9$ Write in scientific notation.
 $= 1.47 \times 10^{10}$ Use product of powers property.

b. $\frac{1.5 \times 10^2}{2 \times 10^{-5}}$
 $= \frac{1.5}{2} \times \frac{10^2}{10^{-5}}$ Use properties of multiplication.
 $= 0.75 \times 10^7$ Use quotient of powers property.
 $= (7.5 \times 10^{-1}) \times 10^7$ Write in scientific notation.
 $= 7.5 \times 10^6$ Use product of powers property.

c. $(7 \times 10^4)^2$
 $= 7^2 \times (10^4)^2$ Use power of a product property.
 $= 49 \times 10^8$ Use power of a power property.
 $= (4.9 \times 10^1) \times 10^8$ Write in scientific notation.
 $= 4.9 \times 10^9$ Use product of powers property.