6.2 Exponents and Scientific Notation

Power Rule for Exponenets

Simplify the following.

a) $(a^3)^4$

b) $(x^{-4})^7$

c) $(2^3)^2$

Power of a Product Rule

Simplify.

a) $(2z)^4$

b) $(4g^5)^{-2}$

c) $((3t^0)^4$

d) $(c^2)^3(3c^5)^4$

e) $(2a^3)^5(3ab^2)$

f) $(6mn)^3(-5m^{-3})^2$

$$(-7)^2 = \qquad\qquad -7^2 =$$

Rule for the Power of a Quotient

a) $\left(\dfrac{2}{a} \right)^4$

b) $\left(\dfrac{-2x}{y^2} \right)^3$

* When simplifying there may be more than one way to apply the various rules of exponents.

a) $\left(\dfrac{3a^2 b}{a^3 b^2} \right)^2$

b) $-2(3x^5 y^{-2})^{-3}$

c) $\left(\dfrac{4x^2y^{-1}}{3x^{-5}y^3}\right)^{-1}$

d) $-3(7xy^2)^0$

6.2b Scientific Notation

Scientific Notation

Write the following decimal numbers in scientific notation.

a) 0.000 000 376   b) 43,000,000,000   c) 0.657

Write the following in standard notation.

a) 5.4×10^3 b) 6.7×10^{-5} c) 4.76×10^5

Use scientific notation to simplify the computations.

a) $\dfrac{0.085 \times 41,000}{0.00017}$

b) $\dfrac{11,100 \times 0.064}{8,000,000 \times 370}$

c) Light travels approximately 3×10^8 meters per second. How many meters per minute does light travel?