

$$\frac{2x^2y^4 \cdot 4x^2y^4 \cdot 3x}{3x^{-3}y^2} = \frac{24x^5y^8}{3x^3y^2} = \boxed{8x^2y^6}$$

$$\frac{(2hj^2k^{-2} \cdot h^4j^{-1}k^4)^0}{2h^{-3}j^{-4}k^{-2}} = \frac{1}{2h^{-3}j^{-4}k^{-2}} = \boxed{\frac{h^3j^4k^2}{2}}$$

$$\frac{(2pm^{-1}q^0)^{-4} \cdot 2m^{-1}p^3}{2pq^2} = \frac{2^{-4}p^{-4}m^4q^0 \cdot 2m^{-1}p^3}{2pq^2} = \frac{2^{-1}p^{-1}m^3 \cdot 1 \cdot 2}{2^4 \cdot 2pq^2} = \frac{p^{-2}m^3}{16pq^2} = \frac{m^3}{16p^2q^2}$$

Homework Questions?

8.4 Scientific Notation

Goals:

- Use scientific notation to represent numbers.
- Use scientific notation to describe real-life situations.

EQ: When do you add zero's to the left/right?

Vocabulary

Scientific notation: $C \times 10^n$
 $C \rightarrow$ single digit $n =$ integer
 + power \rightarrow more
 - power \leftarrow

Example 1: Rewriting in Decimal Form
 Rewrite in decimal form.

a. 7.29×10^6 b. 4.5×10^{-7}
 $7,290,000$ 0.00000045

Try It Rewrite in decimal form.

1. 2.49×10^5 2. 9.6×10^{-3} 3. 4.00027×10^7
 $249,000$ $.0096$ $40,002,700$

Example 2: Rewriting in Scientific Notation

a) 618 b) 2.5
 6.18×10^2 2.5×10^0

c) 0.00007245 d) 310,000,000
 7.245×10^{-5} 3.1×10^8

Try It Rewrite in scientific notation.

4) 0.006 5) 800,200,000,000 6) 0.0000037
 6×10^{-3} 8.002×10^{11} 3.7×10^{-6}

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 8.4 Scientific Notation

Example 3: Computing with Scientific Notation
 Evaluate the expression. Write the result in scientific notation.

a. $(6.0 \times 10^3)(2.4 \times 10^5)$ b. $(3.0 \times 10^{-4})^3$
 $6(2.4) \times 10^{3+5}$ $= 3^3 \times 10^{-12}$
 14.4×10^8 $= 27 \times 10^{-12}$
 1.44×10^9 $2.7 \times 10^1 \times 10^{-12}$
 1.44×10^9 2.7×10^{-11}

c. $(5.4 \times 10^{-2})(7.2 \times 10^{-8})$
 $5.4 \times 10^{-2} \times 7.2 \times 10^{-8}$
 7.2×10^{-8} $-2 + 8$
 0.75×10^6
 $7.5 \times 10^5 = 7.5 \times 10^5$

Try It Evaluate the expression without using a calculator. Write the result in scientific notation and in decimal form.

7. $(2.5 \times 10^4)(4.1 \times 10^6)$ 8. $(2.4 \times 10^{-4}) \div (9.6 \times 10^{-7})$
 0.25×10^{10} $\frac{2.4 \times 10^{-4}}{9.6 \times 10^{-7}} = 0.25 \times 10^3$
 $1.025 \times 10^1 \times 10^1$ $2.5 \times 10^{-1} \times 10^3$
 1.025×10^2 2.5×10^2
 $102,500,000,000$ 250

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 8.4 Scientific Notation

(Big)
+ power →
- power ←
(Small)
#

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