Evaluate each expression for x = -6 and y = 4. Give fractional answers in reduced form (no decimals).

1. $x^{-2}y = \frac{y}{x^2} = \frac{4}{(-6)^2} = \frac{4}{36} = \frac{1}{9}$

2. $+y^{-3} = \frac{-1}{y^3} = \frac{-1}{(4)^3} = \frac{-1}{64}$

Evaluate each expression for x = -6 and y = 4. Give fractional answers in reduced form (no decimals)

3. $2x^2y^{-2} = \frac{2x^2}{y^2} = \frac{2(-6)^2}{(4)^2} = \frac{72}{16} = \frac{9}{2}$

4. $(2y)^{-2} = \frac{1}{(2y)^2} = \frac{1}{(2\cdot 4)^2} = \frac{1}{64}$

1. Write each number in Scientific Notation.

a) $983,000,000$

9.83×10^{8}

b) 0.0000000000002019

2.019×10^{-13}

2. Write each number in Standard Notation.

a) 4.70901×10^{8}

470901000

b) 2.357×10^{-7}

0.0000002357

3. Rewrite each number so that it is in proper Scientific Notation form.

a) 8997.2×10^{-8}

8.9972×10^{-5}

b) $0.0000005682 \times 10^{5}$

5.682×10^{-2}

4. Find this quotient. Write your answer in Standard Notation. $\frac{24.375}{780,000,000}$

5. Find this product. write you answer in Scientific Notation. $(4.2 \times 10^3)(2.5 \times 10^4)$

Properties of Exponents in Chapter 8

- Zero and Negative Exponents $5b^{-3}c^0$
- Multiplying powers with the same base a^4a^7a
- Raising a power to a power $(m^5)^8$
- Raising a product to a power $(5a^3b^7)^2$
- Dividing powers with the same base $\frac{n^8}{n^2}$
- Raising a quotient to a power

3^2

What is the above called? Power

Power: Has two parts

Base Exponent

Write each as a single Power. Write answers without negative exponents.

1. $A \cdot A \cdot A \cdot A \cdot A$ A^5
2. $B \cdot B^4$ B^5
3. $C^4 \cdot C^2 \cdot C^3$ C^9
4. $D^5 \cdot D^{-3} \cdot D \cdot D^{-6}$ $D^{-3} = \frac{1}{D^3}$

Sec 8-3: Multiplication Properties of Exponents

Property **Multiplying Powers With the Same Base**

For every nonzero number a and integers m and n, $a^m \cdot a^n = a^{m+n}$.

When you multiply powers with the same base you

ADD EXPONENTS

Get a small white board.

1. $m^4 \cdot m^5 = m^9$
2. $a^6 \cdot a \cdot a^{-2} = a^5$
3. $w^{-9} \cdot w^{-4} \cdot w^3 = \frac{1}{w^{10}}$
4. $Q^3 \cdot R^5 \cdot Q \cdot R^5 = Q^4R^{10}$
5. $(6x^4y)(5x^2y^3) = 30x^6y^4$
6. $(4c^5d^9)(3c^{-7}d) = \frac{12d^{10}}{c^2}$

Simplify each. Write each answer without negative or zero as an exponent.

1. $C^4 \cdot C \cdot C^6$ C^{11}

2. $W^6X^4W^{-9}X^3W$ $\frac{X^7}{W^2}$

3. $(2R^3S^4)(5R^{-8}S^3)$ $\frac{10S^7}{R^5}$

4. $-A^2B^{-8}C^2A^{-9}B^5CB^3$ $= -1A^{-7}$ $= \frac{-1C^3}{A^7}$

5. $(-2m^4n^{-3}p)(4^2m^5n^2p^6)$ 16 $= -\frac{32m^9p^7}{n}$

Evaluate each for $A = -4 \quad B = 6 \quad C = 2$

Give fractional answers in reduced form (no decimals)

6. $A^{-2}BC^3$

$$\frac{BC^3}{A^2} = \frac{(6)(2)^3}{(-4)^2} = \frac{48}{16} = 3$$

Evaluate each for $A = -4 \quad B = 6 \quad C = 2$

Give fractional answers in reduced form (no decimals)

7. $\left(\frac{AB^{-2}}{C^{-2}}\right)^{-1}$

$$= \left(\frac{AC^2}{B^2}\right)^{-1} = \frac{B^2}{AC^2} = \frac{(6)^2}{(-4)(2)^2} = \frac{36}{-16} = \frac{9}{-4}$$

Simplify.

8. $(4a^{-9}bc^4)(2a^{-2}b^7c^{-2})(5a^8b^{-1}c^5)$

$$\frac{40\,b^7c^7}{a^3}$$

Simplify.

9. $6(3^{-2}g^{10}h^{-4})(4g^{-3}h^2)$

$$\left(\frac{1}{9}g^{10}h^{-4}\right)\left(24g^{-3}h^2\right)=\frac{8\,g^7}{3\,h^2}$$

Simplify.

10. $(x^2y^6z^{-2})(x^{-5}y^7z^9) = \frac{y^{13}z^7}{x^3}$

You can now do Hwk #11

Sec 8-3 Due tomorrow

Pages 407 - 408

Problems 10, 12, 16-18, 21, 28, 40, 44-47

IXL #7 - V.4 & W.1 due Friday at 4pm!