

$$3. c^{-1}d^3x^{-4} = \frac{d^3}{cx^4}$$

$$4. \frac{x^{-3}y^{-4}}{-8z^5} =$$

$$\frac{1}{-8z^5x^3y^4}$$

$$5. \frac{-10c^{-1}}{5^{-1}e^{-3}} = \frac{-10 \cdot 5^1 e^3}{c^1} = \frac{-50e^3}{c}$$

$$6. \frac{6^{-2}h^{-4}j^0m^{-2}}{9^{-1}n^{-3}q^5} =$$

$$\frac{q^1 n^3}{6^2 h^4 m^2 q^5}$$

$$\frac{q n^3}{36 h^4 m^2 q^5}$$

$$\frac{1 n^3}{4 h^4 m^2 q^5}$$

Rewrite each problem so that everything has a Negative exponent.

1. $\frac{m^2 g^5}{c^7}$

2. $8a^6 b^{-4}$

3. $\frac{x^{-3} y^7 z}{m^3 h^{-5}}$

Is the value of each expression POSITIVE or NEGATIVE?

Write POS or NEG

1. -5^2

2. $(-4)^8$

3. $-(-6)^4$

4. -2^3

5. $(-3)^5$

6. $-(-7)^9$

7. $(-6)^{-7}$

8. $(-10)^{-6}$

Properties of Exponents in Chapter 8

- Zero and Negative Exponents

$$5b^{-3}c^0 = \frac{5}{b^3}$$

- Multiplying powers with the same base

$$a^4 \cdot a^7 \cdot a = a^{12}$$

* add exponents

- Raising a power to a power

$$(m^5)^8 = m^{5 \cdot 8} = m^{40}$$

* multiply exponents

- Raising a product to a power

$$(5a^3b^4)^2 = 25a^6b^8$$

* multiply all exp.

- Dividing powers with the same base

$$\frac{n^8}{n^2} = n^6$$

* sub. exp

- Raising a quotient to a power

$$\left(\frac{x^3}{y^7}\right)^4 = \frac{x^{12}}{y^{28}}$$

* multiply

Examples of some of the rules of exponents we'll see in this Chapter

Simplify each.

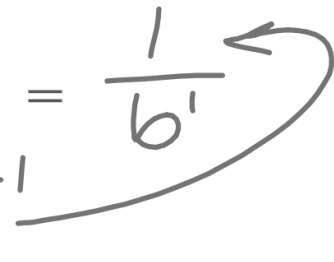
1. $a^3 \cdot a^5 = a^8$

2. $m^6 \cdot m^4 \cdot m = m^{11}$

3. $(3x^5y^4)(7x^{-3}y) = 21x^2y^5$

Simplify each.

$$4. \frac{g^6}{g^2} = g^4$$

$$5. \frac{b^4}{b^5} = \frac{1}{b^1}$$


$$6. \frac{12m^{24}}{4m^6} = 3m^{18}$$

Simplify each.

$$7. (p^4)^3 = p^{12}$$

$$8. (3k^5)^2 = 9k^{10}$$

Write each number as a power of 10 using positive exponents.

1. 10,000 10^4 10

2. 10,000,000 10^7

Sec 8-2: Scientific Notation

Scientific Notation:

A number greater than or equal to 1 but less than 10
times
a power of 10.

It's a compact way to write really big or really small numbers

2.5

Scientific Notation

$25,000 = 2.5 \times 10^4$

Standard Notation
or
Decimal Notation

Examples of numbers written in Scientific Notation.

0.000833

5.20960107 0.000833×10^{-4}
 $52,090,000$

Is each number written in scientific notation?

1. 63.91×10^5
NO

2. 1.0031×10^{-3}
yes

3. 0.98974×10^{-6}
NO.

Does each scientific notation number represent a "big" number or a "small" number?

1. 7.908×10^{-5}
small

2. 3.74×10^2
374 big

3. 2.0027×10^8
large #

4. 9.998×10^{-3}
small

When in Scientific Notation:

A negative exponent means a SMALL number

A positive exponent means a BIG number

Write each number in Scientific Notation:

1. 82,500,000 8.25 $\times 10^7$

2. 0.000056 5.6 $\times 10^{-5}$

Write each number in Standard Notation
(also known as Decimal Notation)

1. 4.33×10^{-4}
0.000433

2. 5.0734×10^7
50,734,000

Each number is NOT in Scientific Notation. Rewrite it so that it IS in Scientific Notation.

1. 223×10^5
 2.23×10^7

2. 4561×10^{-8}
 4.561×10^{-5}

3. 0.00819×10^{-3}
 8.19×10^{-6}

4. 0.0755×10^4
 7.55×10^2

You can now finish Hwk #10

Pages 402-403

Problems 1-3, 10-12, 16-18

IXL #5 - V.1 & V.3 due today at 4pm!