POLYNOMIALS

Read pgs. 223-225

Monomial: an expression that is a number, variable or the product of a number and variable

Ex: -4 x^2 $-4x^2$

Polynomial: a monomial or a sum of monomials

ex: $-2x^3 + 4x^2 - x$

Binomial: a polynomial with two unlike terms

ex: $4y-5$

Trinomial: a polynomial with three unlike terms

ex: $x^2 + 3x - 6$

Degree of a monomial: sum of exponents

Power: an expression in the form of X^n

What are EXPONENTS?

2^3 means:

x^4 means

-2^3 means

$(-2)^3$ means

$3x^4$ means

$(3x)^4$ means

x^{-4} means

$3x^{-4}$ means

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Simplifying an Expression

Rewrite the expression without parentheses or negative exponents and each variable appears only once

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Rules for Simplifying Monomials

Rule	Example
Negative exponents $a^{-n} = \frac{1}{a^n}$ $a \neq 0$, n is an integer	
Product of Powers $a^m \cdot a^n = a^{m+n}$ Real number a, Integer m,n	
Quotient of Powers $\frac{a^m}{a^n} = a^{m-n}$	

Power to a Power $(a^m)^n = a^{mn}$	
Power of a Product $(ab)^m = a^m b^m$	

$$\frac{x^2}{x^{10}}$$

$$\left(b^2\right)^4$$

$$\left(\frac{-2a}{b^2}\right)^5$$

$$2^{-3}$$

$3x^{-2}$

\

$$\frac{1}{b^{-8}}$$

$$\left(\frac{-2a^3b^6}{18a^2b^2}\right)$$

$$\left(\frac{1}{w^4z^2}\right)^3$$

Example: $\frac{30y^4}{-5y^2}$

$\left(\frac{cd}{3}\right)^{-2}$ $\qquad$ $\frac{-6x^6}{3x^3}^{-2}$

$\frac{9z^2}{36^3x^6}$ $\qquad$ x^{-6}

What is SCIENTIFIC NOTATION?

Convenient way to write and work with very long numbers ("large" or "small").

Form: $a \times 10^n$, *where:*

$1 \leq a < 10$ *and* n *is an integer*

EX: 421,000 0.000862

$(3.42 \times 10^{8})(1.1 \times 10^{-5})$

$$\frac{8\times10^{-1}}{16\times10^{-2}}$$