Semester 2

Polynomials and Applications

Warm-Up Feb 1,2011

$-2 \times -2 \quad -2^2$

Find the value of the following polynomials when $a = -2$ and $b = 4$.

a) $2a - 3b$

b) $a^2 - 2b^2 - 2a$

$2(-2) - 3(4)$

$-4 - 12$

-16

BEDMAS

$(-2)^2 - 2(4)^2 - 2(-2)$

$4 - 2(16) - -4$

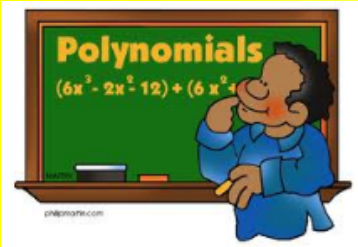
$4 - 32 + 4$

$-28 + 4$

-24

2×4^2

2×16



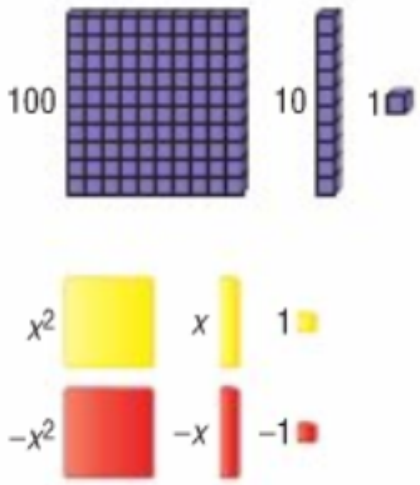
Unit 1
Polynomials

In arithmetic, we use Base Ten Blocks to model whole numbers. How would you model the number 234?

In algebra, we use algebra tiles to model integers and variables.

Yellow represents positive tiles. Red represents negative tiles.

I



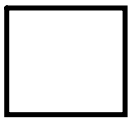
What will be positive? what will be negative?

Algebra Tiles

x^2 x 1



Positive - shaded



Negative - empty

Terms for the Polynomial Unit...

Polynomial- **one term** or the **sum or differences** of terms whose variables have whole-number exponents.

$3x^2 + -2x + 5$

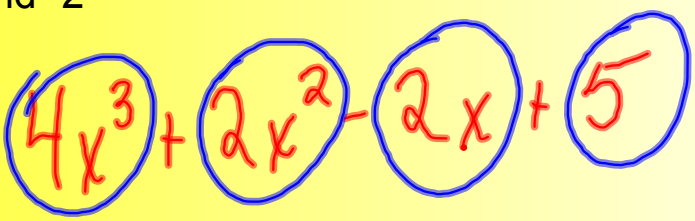
Variable- is x

The above polynomial has ***3 terms***: $3x^2$, -2x, and 5

do we have to use "x"?

Terms are numbers, variables or the product of numbers and variables.

Coefficient **-the number in front of the variable. In the above** of the variable are 3 and -2



The term with the greatest exponent determines the **degree** of the polynomial. This polynomial has degree 2.

$3x^2 - 2x + 5$

The term 5 is a **constant term**. Its value does not change when the value of x changes. A constant term has degree 0.

The term $-2x$ has degree 1 because $-2x = -2x^1$.

Classifying polynomials [look at the number of terms]...

Polynomials with 1, 2, or 3 terms have special names.

A **monomial** has 1 term, for example: $4a$, 6, $-2p^2$

A **binomial** has 2 terms, for example: $2c - 5$, $2m^2 + 3m$

A **trinomial** has 3 terms, for example: $2h^2 - 6h + 4$

******An algebraic expression that contains a term with a variable in the denominator, such as 3/n, or the square root of a variable, such as $\sqrt{n}$, is not a polynomial.******