Algebra I

SECTION 2.6
ADDING AND SUBTRACTING EXPRESSIONS

OBJECTIVES: USE THE DISTRIBUTIVE PROPERTY TO COMBINE LIKE TERMS AND SIMPLIFY EXPRESSIONS WITH SEVERAL VARIABLES

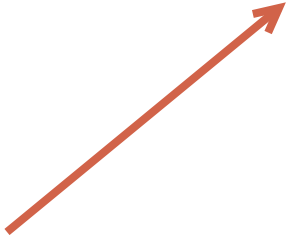
Adding and Subtracting Polynomials

Monomial: An expression that is either a numeral, variable, or the product of a numeral and one or more variables.

Examples: 14, z, $\frac{2}{3}r$, $-6x^2y$

A numeral, such as 14, is called a **constant monomial, or constant.**

$-3xy^2$



Coefficient

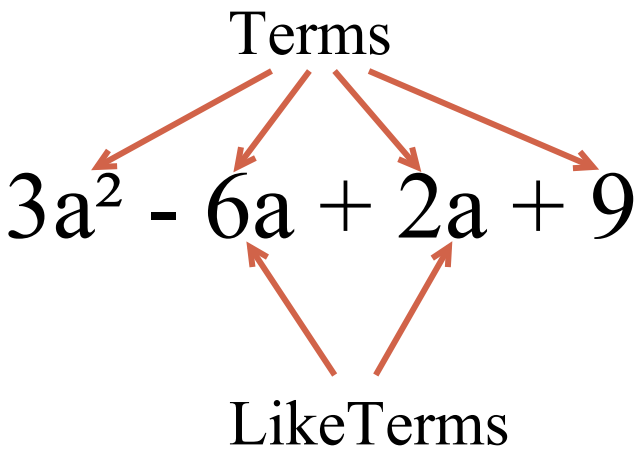
Polynomial: The sum of monomials

Examples: $x^2 + (-4x) + (-5)$ written $x^2 - 4x - 5$

Terms: parts of an expression that are added and subtracted.

Like Terms: terms that contain the same variables raised to the same powers.

Simplifying expressions: combining all like terms



Simplified : $3a^2 - 4a + 9$

Practice: Simplify the polynomials

1. $6m - 6n - 4m + n$
2. $n^2 - 4n - 3n^2 + 7n + 5n^2$
3. $p^2q - q^3 - 3p^2q + 4q^3$
4. $-3x^2 + 7x^2y - x^3 + xy^2 + 4x^3 - 3x^2y$

Adding polynomial expressions

Example: $(6x^2 - 3xy + 2y^2) + (3x^2 - 3xy + y^2)$

First remove the parenthesis:

$$6x^2 - 3xy + 2y^2 + 3x^2 - 3xy + y^2$$

Then group like terms and combine them:

$$6x^2 - 3xy + 2y^2 + 3x^2 - 3xy + y^2$$

Solution: $9x^2 - 6xy + 3y^2$

Practice: Simplify

1. $(3x - 2y + 5) + (x + 2y - 2)$

2. $(2p - q + 1) + (-p - q + 3)$

3. $(u^3 - 3u^2v + 2uv^2) + (3u^2v - 2uv^2 - v^3)$

4. $(2x^2y - 3xy^2 - y^3) + (2x^2y - xy^2)$

Subtracting polynomial expressions

Example: $(6x^2 - 3xy + 2y^2) - (3x^2 - 3xy + y^2)$

First rewrite by adding the opposite:

$$(6x^2 - 3xy + 2y^2) + (-3x^2 + 3xy - y^2)$$

Then remove the parenthesis:

$$(6x^2 - 3xy + 2y^2) + -3x^2 + 3xy - y^2$$

Then group like terms and combine them:

$$6x^2 - 3xy + 2y^2 + -3x^2 + 3xy - y^2$$

Solution: $3x^2 + y^2$

Practice: Simplify

1. $(3x - 2y + 5) - (x + 2y - 2)$
2. $(2p - q + 1) - (-p - q + 3)$
3. $(u^3 - 3u^2v + 2uv^2) - (3u^2v - 2uv^2 - v^3)$
4. $(2x^2y - 3xy^2 - y^3) - (2x^2y - xy^2)$

Homework: P92-93 #21-45o, Study Perfect Squares and Properties