

Learning Goals

1. To understand what a monomial, binomial and trinomial is.
2. To be able to identify "like terms".
3. To understand how to add polynomials.
4. To understand that when subtracting polynomials you actually add the opposite.

2.4 - Adding and Subtracting Polynomials

Monomial - an algebraic expression with one term. For example, $5x$.

Binomial - an algebraic expression with two terms. For example, $3x^2 - 1$

Trinomial - an algebraic expression with three terms. For example, $3x^2 - 4x + 7$

Polynomial - an expression that comprises a sum and/or differences of monomials.

Example One

Identify the like terms and underline the coefficients.

$$2t^2, -3t, 4xy, 6t, -18t^2, 9xy$$

* Like terms \rightarrow terms with identical variables.
(i.e. $2x^3 + -10x^3$)

$$\underline{2}t^2 + \underline{-18}t^2$$

$$\underline{-3}t + \underline{6}t$$

$$\underline{4}xy + \underline{9}xy$$

Rules for Adding Polynomials

1. Drop any brackets.
2. Combine like terms.

Example Two

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

1. Drop the brackets.

$$\boxed{x^2} + \boxed{2y} + \boxed{3} + \boxed{4x^2} - \boxed{2y}$$

2. Combine like terms.

$$5x^2 + 3$$

Example Three

Add. $(2x + 3y) + (5x - 4y) + (2x - y)$

1. Drop the brackets.

$$\underline{2x} + \underline{3y} + \underline{5x} - \underline{4y} + \underline{2x} - \underline{y}$$

2. Combine like terms.

$$9x - 2y$$

Rules for Subtracting Polynomials

1. Change the subtraction sign to addition and the sign of each term in the second bracket.
2. Drop the brackets.
3. Combine like terms.

Example Four

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

1. Rewrite question.

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

2. Drop the brackets.

$$\cancel{x^2} + \cancel{2y} + 3 + \cancel{-4x^2} + \cancel{2y}$$

$$-3x^2 + 4y + 3$$

Example Five

Subtract.

$$(y^2 - 2y + 2) - (3y^2 - 2y + 3)$$

$$1. (y^2 - 2y + 2) + (-3y^2 + 2y - 3)$$

$$2. \cancel{y^2} - \cancel{2y} + \cancel{2} + \cancel{-3y^2} + \cancel{2y} - \cancel{3}$$

$$3. -2y^2 - 1$$

Complete: p. 109 - 111 #2, 5, 7, 9, 10, 11, 13a.