

**Worksheet 4-6: Adding and Subtracting Polynomials****Simplest Form of Polynomials:**

A polynomial or an algebraic expression is in its simplest form when there are **no like terms**.

So, we need to collect like terms to simplify polynomials.

**Steps for Collecting Like Terms**

Step 1: Group like terms together

Step 2: Add or Subtract the coefficients of the like terms

\*\* Pay special attention to “-” sign: you need to change the sign(s) when distributing the bracket.

**1. Simplifying Monomials**

(a)  $-2x + 3y + 4x + 5y$

(b)  $4x - 6x^2 + 5x - 9x^2$

**2. Simplifying Binomials** (*Distribute the sign before the brackets by multiplying it into the brackets.*)

(a)  $(4y + 1) + (8y - 3)$

(b)  $(7x - 1) + (1 - 10x)$

(c)  $(8x^2 - 4) - (3x^2 + 1)$

(d)  $(9y + 3) - (8 - 23y)$

**3. Simplifying Trinomials**

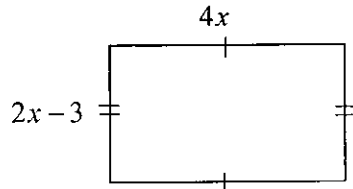
(a)  $(2x^2 + 3x + 1) + (x^2 - 2x - 3)$

(b)  $(4x - 5y + 7) - (3x + 2y - 5)$

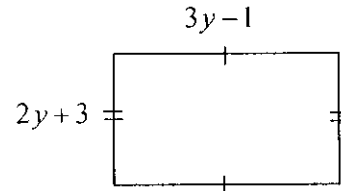
**Polynomial Challenge:**

4. Write a polynomial for the perimeter of each figure. *A polynomial is always in its simplest form with no brackets, no like terms, or no two signs next to one another.*

(a)

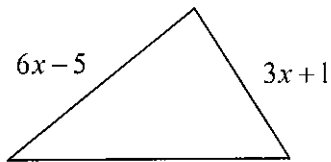


(b)

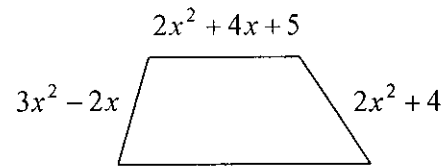


5. Given the perimeter,  $P$ , find the missing side length of each figure.

(a)  $P = 15x + 7$



(b)  $P = 11x^2 + 6x + 9$



6. Expand and simplify.

(a)  $4(2x-7) - 5(4x+9)$

(b)  $3(y^2 - y - 1) + 2(-3y^2 + 5y - 6)$