

Accuplacer Study Modules

TOPIC: Add and Subtract Polynomials

Khan Academy Link: <https://www.khanacademy.org/math/algebra-basics/quadratics-polynomials-topic/polynomial-basics-core-algebra/v/adding-and-subtracting-polynomials-2>

Steps to Add Polynomials: To add polynomials we simply add any **like terms** together.

Step 1: Arrange each polynomial with the term with the **highest degree first** then in decreasing order of degree.

Step 2: Group the **like terms**. Like terms are terms whose variables and exponents are the same.

Step 3: Simplify by **combining like terms**.

Sample Problem: Add the polynomials. $(2x^2 + 6x + 5) + (3x^2 - 2x - 1)$

Step 1: The polynomials are in **decreasing order** of degree.

Step 2: Group the like terms.

$$2x^2 + 3x^2 + 6x - 2x + 5 - 1$$

Step 3: Simplify by **combining the like terms**

$$2x^2 + 3x^2 + 6x - 2x + 5 - 1$$

$$5x^2 + 4x + 4$$

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Steps to Subtract Polynomials:

To subtract Polynomials, first **reverse the sign of each term** we are subtracting (turn “+” into “-”, and “-” into “+”), then follow the previous steps to add polynomials.

Sample Problem: Subtract the polynomials.

$$5y^2 + 2xy - 9 - (2y^2 + 2xy - 3)$$

Step 1: Reverse the sign of each term we are subtracting.

$$5y^2 + 2xy - 9 - (2y^2 + 2xy - 3)$$

$$5y^2 + 2xy - 9 + (-2y^2 - 2xy + 3)$$

Step 2: The polynomials are in **decreasing order** of degree.

Step 3: Group the like terms.

$$5y^2 - 2y^2 + 2xy - 2xy - 9 + 3$$

Step 4: Simplify by combining the like terms.

$$5y^2 - 2y^2 + 2xy - 2xy - 9 + 3$$

$$3y^2 - 6$$

Now complete the four practice problems on the next page and check your answers!

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TOPIC: Add and Subtract Polynomials

1. Add the polynomials.

$$(4t + 9) + (4t^2 + 5t)$$

2. Find the perimeter of a rectangle with a length of q and a width of $(q-2)$.

3. Find the difference.

$$(x^3 + 3x^2 + 5x - 4) - (3x^3 - 8x^2 - 5x + 6)$$

4. Find the perimeter of a triangle with side lengths: 6 , $(b-1)$, and $(b-2)$.