

Intro to College Math: Chapter 5.4
Adding/subtracting Polynomials

* Polynomials — an expression composed of variables, constants, that are combined using addition, subtraction, multiplication, and division.

* binomial — polynomial with 2 terms.

$$\underline{2x} + \underline{3}$$

* Trinomial — polynomial with 3 terms.

$$5x^2 + \underline{x} - \underline{2}$$

* Degree — the highest power to which the variable is raised.

$$\text{ex) } x^{\underset{\uparrow}{2}} - 5x + 3$$

Degree = 2

$$\text{ex) } x^{\underset{\uparrow}{5}} + 3x^3 + x + 7$$

Degree = 5

1. Perform the following additions and/or subtractions:

$$(6t^2 + 7t + 2) + (6t^2 + 4t + 7)$$

$$\underline{6t^2} + \underline{7t} + \underline{2} + \underline{6t^2} + \underline{4t} + \underline{7}$$

$$\boxed{12t^2 + 11t + 9}$$

* Since this is an addition problem, you can drop the ().

* Then add like terms.

2. Perform the following additions and/or subtractions:

$$(4h^2 - h + 6) + (5h^2 - 4h + 3)$$

$$\underline{4h^2} - \underline{h} + \underline{6} + \underline{5h^2} - \underline{4h} + \underline{3}$$

$$\boxed{9h^2 - 5h + 9}$$

* Since this is an addition problem, you can drop the ().

* Then add like terms.

3. Perform the following additions and/or subtractions:

$$(6r^3 + 5r^2 + 2r) + (3r^2 + 5r + 8)$$

$$\underline{6r^3} + \underline{5r^2} + \underline{2r} + \underline{3r^2} + \underline{5r} + \underline{8}$$

$$6r^3 + 8r^2 + 7r + 8$$

* Since this is an addition problem, you can drop the ().

* Then add like terms.

4. Perform the following additions and/or subtractions:

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

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

$$\underline{x^2} + \underline{x} - \underline{1} + \underline{x^2} + \underline{x} - \underline{1}$$

$$2x^2 + 2x - 2$$

* When subtracting polynomials, you need to distribute the minus sign.

* Multiply the (-) sign by each term inside the () that follows it.

• Think about it like multiplying each term in () by (-1).

* Then combine like terms.

5. Perform the following additions and/or subtractions:

$$(3r^2 - 8r - 1) - (-3r^2 + 8r + 1)$$

$$(3r^2 - 8r - 1) - (-3r^2 + 8r + 1)$$

$$\underline{3r^2} - \underline{8r} - \underline{1} + \underline{3r^2} - \underline{8r} - \underline{1}$$

$$6r^2 - 16r - 2$$

* When subtracting polynomials, you need to distribute the minus sign.

* Multiply the (-) sign by each term inside the () that follows it.

• Think about it like multiplying each term in () by (-1).

* Then combine like terms.

6. Perform the following additions and/or subtractions:

$$(h^3 - 2h^2 - 6) - (-7h^3 + 8h^2 + 1)$$

$$(h^3 - 2h^2 - 6) - (-7h^3 + 8h^2 + 1)$$

$$\underline{h^3} - \underline{2h^2} - \underline{6} + \underline{7h^3} - \underline{8h^2} - \underline{1}$$

$$\boxed{8h^3 - 10h^2 - 7}$$

* When subtracting polynomials, you need to distribute the minus sign.

* Multiply the (-) sign by each term inside the () that follows it.

• Think about it like multiplying each term in () by (-1).

* Then combine like terms.

7. Perform the following additions and/or subtractions:

$$(4a^2 + 4a + 6) - (2a^2 + 7a - 6) + (6a^2 + 7a - 6)$$

$$(4a^2 + 4a + 6) - (2a^2 + 7a - 6) + (6a^2 + 7a - 6)$$

$$\underline{4a^2} + \underline{4a} + \underline{6} - \underline{2a^2} - \underline{7a} + \underline{6} + \underline{6a^2} + \underline{7a} - \underline{6}$$

$$\boxed{8a^2 + 4a + 6}$$

Hint: When combining like terms, use different colors or lines drawn under to help keep track.