

Name:

Date:

Topic/Objective: Adding and Subtracting Polynomials

Class/Period:

Questions/Main Ideas:

Notes:

Warm up:

$$5x + 4(2x + 7)$$

$$\underline{5x + 8x + 28}$$

$$13x + 28$$

Vocabulary:

Degree: the largest exponent found in the polynomial

Standard form: arranging the order from the largest to smallest exponent

Term: parts of an expression that are added or subtracted together

Leading coefficient: the coefficient of the polynomial in standard form

Constant: term that has no variable (only a number)

Monomial: a polynomial that only has one term

Binomial: a polynomial that has two terms

Trinomial: a polynomial that has three terms

polynomial: has more than three terms

leading coefficient - $2x^3 + x^2 - 5x + 12$ - constant

4 terms; polynomial

Examples:

| | Degree | Standard form | Leading Coefficient | Constant | Monomial, Binomial, Trinomial |
|-----------------------------|--------|------------------------------|---------------------|----------|-------------------------------|
| $4 - x + 2x^3$ | 3 | $2x^3 - x + 4$ | 2 | 4 | Trinomial |
| $4x^3 - 3x^6 + 2 + x^2$ | 6 | $-3x^6 + 4x^3 + x^2 + 2$ | -3 | 2 | Polynomial |
| $3 - 5x$ | 1 | $-5x + 3$ | -5 | 3 | Binomial |
| $-4x$ | 1 | $-4x$ | -4 | — | Monomial |
| 14 | 0 | 14 | — | 14 | Monomial |
| $x^2 + 4x - x^4 + 3x^3 - 8$ | 4 | $-x^4 + 3x^3 + x^2 + 4x - 8$ | -1 | -8 | Poly |
| $2x^2 - 5x + 1$ | 2 | $2x^2 - 5x + 1$ | 2 | 1 | Tri |

Adding and subtracting polynomials:

1. Drop the parenthesis
2. Combine like terms
3. Write your answer in standard form

1. $(3x^2 + x - 5) + (x + x^2 + 6)$

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

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

$$4x^2 + 2x + 1$$

2. $(6x^2 - x + 3) + (-2x + x^2 + 7)$

3. $(5x^3 - x + 2x^2 + 7) + (3x^2 + 7 - 4x) + (4x^2 - 8 - x^3)$

$$5x^3 + \underline{2x^2 + 3x^2 + 4x^2} - \underline{x^3} - \underline{x - 4x} + \underline{7 + 7 - 8}$$

$$4x^3 + 9x^2 - 5x + 6$$

4. $(-8x^3 + x - 9x^2) + (2 + 4x^2 - 3x^3 + 1) + (8x^2 + 4 - 2x)$

* Distribute the negative

5. $(x^2 - 8) - (7x + 4x^2)$

$$x^2 - 8 - 7x - 4x^2$$

$$\underline{x^2 - 4x^2} - 7x - 8$$

$$-3x^2 - 7x - 8$$

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

$$3x^2 - 5x + 3 - 2x^2 + x + 4$$

$$3x^2 - 2x^2 - 5x + x + 3 + 4$$

$$x^2 - 4x + 7$$

$$7. (-2x^3 + 5x^2 + x + 8) - (2x^3 + 3x - 4)$$

$$8. (12x - 8x^2 + 6) - (-8x^2 - 3x + 4)$$

$$9. (3x^3 - 2x) + (-4x + x^2) - (5 + 4x^3)$$

★

$$10. (9x^2 - 3x + 1) - (-2x^3 + 5) - (5x^2 - 3)$$

$$9x^2 - 3x + 1 + 2x^3 - 5 - 5x^2 + 3$$

$$2x^3 + 4x^2 - 3x - 1$$

$$2x^3 + 4x^2 - 3x - 1$$