

Warm Ups

Combine the like terms.

week 5

$$1) \quad \underline{3x^4} - \underline{3x} + \underline{2x^4} - 4 + \underline{10x} - \underline{4x^2}$$

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

$$2) \quad \checkmark \underline{-x^2 + 3x} + \underline{7x^3} + \checkmark \underline{x^2 + 2x} - \underline{9x^3}$$

$$-2x^3 + 0x^2 + 5x$$

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

Pre-Test

Homework Questions?

Self Scoring Scale

4- I can *summarize* the concepts and explain it to others.

3- I can *apply* the concepts to answer questions correctly.

2- I can *apply* the concepts but with some *mistakes*.

1- I *need help* to know how to apply the concepts.

0- I *can't* apply the concepts even with help.

10.1 Adding and Subtracting Polynomials

- Goals:**
- Add and subtract polynomials.
 - Use polynomials to model real-life situations.

EQ: What is the difference between naming polynomials by degree vs. by terms?

Algebra 1.5		←	→
② LAST UNIT/Experience Quadratic Equations	① CURRENT UNIT Polynomials & Factoring		③ NEXT UNIT/Experience Rational Equations
⑧ Student Activities or Assignments	⑤ UNIT MAP		
<ol style="list-style-type: none"> 1. 10.1 2. 10.2 3. 10.3 4. 10.4 5. 10.5 6. 10.6 7. 10.7 8. 10.8 			
⑦ UNIT SELF-TEST QUESTIONS	<ol style="list-style-type: none"> 1. When adding & subtracting polynomials, how do you combine like terms? 2. How do you use distributive property, FOIL, and diagrams to multiply polynomials? 3. What is the method for factoring trinomials? 4. How is factoring & the Zero-Product Property used to solve polynomials? 		⑥ UNIT RELATIONSHIPS
	Factor Solve Calculate Simplify		

Vocabulary

Polynomial:

sum of the terms in the form Ax^k

ex: $5x^3 + 4x^2 - 1$

Standard form:

terms are placed in descending order

Largest power \rightarrow Smallest power ex: $4x^2 - 5x + 2$

Degree: the exponent of the variable

Degree of a polynomial: Largest exponent

Leading Coefficient:

The coefficient of the first term
(in standard form)

Monomial: one term ex: $2x^2$

Binomial: two term ex: $3x + 1$

Trinomial: three term ex: $3x^2 + 5x - 3$

Example 1: Identifying Polynomial Coefficients

Identify the coefficients of $x + 3x^4 - 11x^3 - 9$.

$$3x^4 - 11x^3 + x - 9$$

$$3x^4 - \underline{11}x^3 + \underline{0}x^2 + x^1 - 9x^0$$

3, -11, 0, 1, -9

Example 2: Classifying Polynomials p. 576

Polynomial	Degree <i>largest power</i>	Classified by Degree	Classified by Number of Terms
a) $-3x^0$	<u>0</u>	→ <u>Constant</u>	<u>monomial (1)</u>
b) $-x^1 + 1$	<u>1</u>	→ <u>Linear</u>	<u>binomial (2)</u>
c) $x^2 + 3$	<u>2</u>	→ <u>Quadratic</u>	<u>binomial (2)</u>
d) $5x^3 - 3x^2 + x - 8$	<u>3</u>	→ <u>Cubic</u>	<u>polynomial (4+)</u>
e) $-x^4 + 2x^3 + 3$	<u>4</u>	→ <u>Quartic</u>	<u>trinomial (3)</u>

Like terms = Same
variable & exponent

Example 3: Adding Polynomials

Find the sum. Write the answer in standard form.

$$(-3x^3 + 11x^2 - 8x + x^5 + 2) + (8x - 2x^4 + 7x^3 - 3 + 12x^2)$$

Solution

Write each expression in standard form. Align like terms.

$$\begin{array}{r} x^5 + 0x^4 - 3x^3 + 11x^2 - 8x + 2 \\ + 0x^5 - 2x^4 + 7x^3 + 12x^2 + 8x - 3 \end{array}$$

$$\boxed{1x^5 - 2x^4 + 4x^3 + 23x^2 + 0x - 1}$$

$$x^5 - 2x^4 + 4x^3 + 23x^2 - 1$$

To add or subtract two polynomials, add or subtract the like terms. You can use a vertical format or a horizontal format.

Example 4: Subtracting Polynomials

Find the difference.

$$(11x^4 + x^3 - x + 5) - (-x^4 - x^2 + 2x + 8)$$

$$(11x^4 + x^3 - x + 5) + x^4 + x^2 - 2x - 8$$

$$\begin{array}{r} 11x^4 + x^3 + 0x^2 - x + 5 \\ - (\ominus x^4 \oplus 0x^3 \ominus x^2 \oplus 2x \oplus 8) \end{array}$$

$$\begin{array}{r} 11x^4 + x^3 + 0x^2 - x + 5 \\ + 1x^4 - 0x^3 + x^2 - 2x - 8 \end{array}$$

$$\boxed{12x^4 + x^3 + x^2 - 3x - 3}$$

When subtracting one polynomial from another, don't forget to distribute the subtraction sign to each term of the polynomial that's being subtracted.

Try It Find the sum or difference.

$$1. (2x^6 - x^5 + 3x^3 - 14x^2 + 13) + (7x^5 - x^4 + 9x^3 + 13x^2 + 2)$$

$$2x^6 + 6x^5 - x^4 + 12x^3 - 1x^2 + 15$$

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

$$-x^3 - 5x^2 + x - 1 + x^3 - 3x^2 - 10x + 9$$

$$-8x^2 - 9x + 8$$

$$\begin{array}{r} -x^3 - 5x^2 + x - 1 \\ + x^3 - 3x^2 - 10x + 9 \\ \hline \end{array}$$

Summary

Degree \rightarrow look at largest exponent

of Terms \rightarrow count how many terms you have

10.1 Homework

Combine Like Terms wkst