

Algebra II
Polynomials
Add, Subtract, and Multiply

Adding, Subtracting and Multiplying Polynomials

$$8x^2 + 3x + 5x^3 - 17$$

Write in standard form (highest exponent to lowest)
What is the degree of the polynomial and leading coefficient?

$$5x^3 + 8x^2 + 3x - 17$$

Degree = 3
(Highest Exponent) LC = 5

How many terms are there? 4

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Example 1: Add and Subtract Polynomials. Tell degree and number of terms and leading coefficient.

A. $(2x^3 + 9 - x) + (5x^2 + 4 + 7x + x^2)$

$$3x^3 + 5x^2 + 6x + 13$$

D = 3
LC = 3
terms = 4

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

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

D = 2
LC = -3
Terms = 3

Example 2: Now, you try to add and subtract polynomials. Also tell the degree and number of terms and leading coef.

A. $(3x^3 + 7x - 1) + (4x^2 + 6 + 7x + x^2) - (3 + 2x^2)$

$$4x^3 + 6x^2 + 14x + 2$$

D = 3
LC = 4
Terms = 4

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

$$-7x^3 - 7x^2 + 3x - 3$$

D = 3
LC = -7
terms = 4

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Example 3: Multiplying Polynomials.

A. $(a - 3)(2 - 5a + a^2)$
 $2a - 5a^2 + a^3 - 6 + 15a - 3a^2$
 $a^3 - 8a^2 + 17a - 6$

B. $(y^2 - 7y + 5)(y^2 - y - 3)$
 $y^4 - y^3 - 3y^2 - 7y^3 + 7y^2 + 21y + 5y^2 - 5y - 15$
 $y^4 - 8y^3 + 9y^2 + 16y - 15$

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Example 4: Now, you try to multiply polynomials.

A. $(3x - y)(2x^2 - 4xy + y^2)$
 $6x^3 - 12x^2y + 3xy^2 - 2x^2y + 4xy^2 - y^3$
 $6x^3 - 14x^2y + 7xy^2 - y^3$


B. $(7y^2 - 4y + 3)(-y^2 - 5y + 8)$
 $-7y^4 - 35y^3 + 56y^2 + 4y^3 + 20y^2 - 32y - 3y^2 - 15y + 24$
 $-7y^4 - 31y^3 + 73y^2 - 47y + 24$

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Conclusion

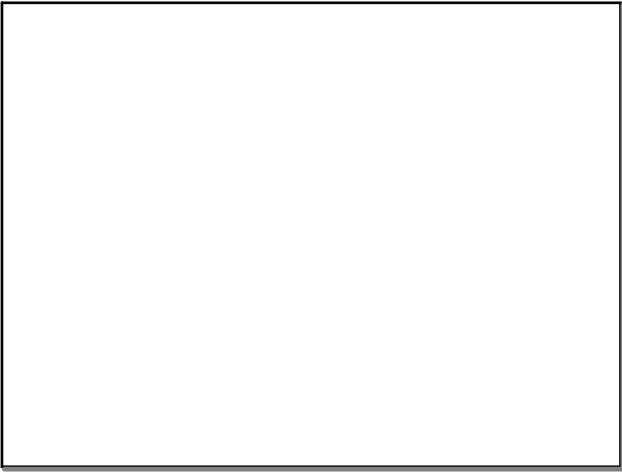
1. What do we do to add polynomials?
Like Terms
2. How do we subtract polynomials?
Add Opposite
3. What do we do to multiply polynomials?
Distribute
4. How do you find the degree?
Highest Exponent
5. How should all answers be written?
Highest Exponent to Lowest
6. What is a leading coefficient?
in front of Highest Exponent

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Assignment:
 pg. 410: #10-13, 27-30
 pg. 418: #18-25

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