

March 5, 2012
Are we caught up?

Alg2



3/5 - Operations with Polynomials

sum of any # of terms

$$a_n x^n + a_{n-1} x^{n-1} + \dots + a_2 x^2 + a_1 x^1 + a_0 x^0$$

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$$\underline{3}x^6 + \underline{5}x^5 - \underline{3}x^4 + \underline{1}x^3 - \underline{2}x^2 + \underline{1}x - 4$$

degree 6.

Binomial: sum of 2 terms

Term: combination of #'s and/or var. using mult.

Trinomial: sum of 3 terms

Monomial: one term

Coefficient: # in front of the variable

Degree of a term: total # of variables

Degree of a polynomial: degree of the term with the highest degree

Adding: answers should be in
descending order of powers
combine LIKE terms

$$\begin{aligned} & (\underline{4} - \underline{b^3} + \underline{5b}) + (\underline{4b^2} + \underline{3b^3} - \underline{3b}) \\ & = 2b^3 + 4b^2 + 2b + 4 \end{aligned}$$

$$\begin{aligned} & (\underline{4n^2} - \underline{2} - \underline{4n^3}) + (\underline{-5n} - \underline{2n^3} + \underline{5}) + (\underline{-7n^4} + \underline{3n^3}) \\ & = -7n^4 - 3n^3 + 4n^2 - 5n + 3 \end{aligned}$$

Subtracting: Descending order of Powers
distribute the negative, then add.

$$(\cancel{7x^3} - \underline{x} - \underline{8}) + (\cancel{7x^3} + \underline{8x} + \underline{3})$$
$$= -9x - 11$$

$$(a + 5a^3) + (8 + 3a + a^3)$$
$$= 6a^3 + 4a + 8$$

Multiplying: distribute

$$\begin{aligned} & \overbrace{-8(-5k + 1)} \\ &= 40k - 8 \end{aligned}$$

$$(7x + 6)(3x - 5) \quad \text{FOIL}$$

$$= 21x^2 - \underline{35x} + \underline{18x} - 30$$

$$= 21x^2 - 17x - 30$$

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

Double-distribute

$$\begin{aligned} &= -3x^3 + 4x^2 + 6x + 12x^2 - 16x - 24 \\ &= -3x^3 + 16x^2 - 10x - 24 \end{aligned}$$

$$(-4b^2 + 3b + 5)(b - 7)$$

$$\begin{aligned} &= -4b^3 + 3b^2 + 5b + 28b^2 - 21b - 35 \\ &= -4b^3 + 31b^2 - 16b - 35 \end{aligned}$$

Exponents: Tell how many times the base is multiplied

$$(2x-3)^2$$

$$= (2x-3)(2x-3)$$

$$= 4x^2 - 6x - 6x + 9$$

$$= 4x^2 - 12x + 9$$

$$(x+2)^3$$

$$= (x+2)(x+2)(x+2)$$

$$= (x^2 + 2x + 2x + 4)(x+2)$$

$$= (x^2 + 4x + 4)(x+2)$$

$$= x^3 + 4x^2 + 4x + 2x^2 + 8x + 8$$

$$= x^3 + 6x^2 + 12x + 8$$

Homework

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Due Tuesday