Honors Algebra II

Notes Section 2.3

Add, Subtract, and Multiply Polynomials

EXAMPLE 1 Add vertically or horizontally.

a) Vertically $(2x^3 - 5x^2 + 3x - 9)$ and $(x^3 + 6x^2 + 11)$

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

EXAMPLE 1 Subtract vertically or horizontally.

a) Vertically $(8x^3 - x^2 - 5x + 1) - (3x^3 + 2x^2 - x + 7)$

b) Horizontally $(4z^2 + 9z - 12) - (5z^2 - z + 3)$

EXAMPLE 3 Multiply vertically or horizontally.

a) Vertically

$(-2y^2 + 3y - 6)(y - 2)$

b) Horizontally

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

EXAMPLE 4 Multiply.

a) $(x - 5)(x + 1)(x + 3)$

Special Products

I. $(a + b)(a - b) =$ _____

II. $(a + b)^2 =$ _____

$(a - b)^2 =$ _____

III. $(a + b)^3 =$ _____

$(a - b)^3 =$ _____

EXAMPLE 5 Use Special Products to Multiply.

a) $(3t + 4)(3t - 4)$ _____

b) $(8x - 3)^2$ _____

c) $(4a + 7)^2$ _____

d) $(pq + 5)^3$ _____

_____

e) $(mn - 6)^3$ _____

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EXAMPLE 6 Since 1980, the number W (in thousands) of US wells producing crude oil and the average daily oil output/well O (in barrels) can be modeled by

$$W = -0.575t^2 + 10.9t + 548$$

and

$$O = -0.249t + 154$$

where t = the number of years since 1980. Write a model for the average total amount T of crude oil produced/day. What was the average total amount of crude oil produced/day in 2000?