Lesson Title 5.3 Multiplying Polynomials DAY ONE NOTES B2A2 Date _____

OBJECTIVE 3: Multiplying Monomials

Remember, that to multiply exponential expressions with a common base, we use the product rule for exponents and add the exponents. You can multiply anything; they do not need to be like terms.

$$(-5x^3)(-2x^4) = (-5)(-2)(x^3)(x^4) = 10x^7$$

TASK 1: Multiply.

a) $6x^1 \cdot 4x^1$ → $24x^2$

b) $7x^2 \cdot 0.2x^5$ → $7 \cdot 0.2x^{2+5}$ → $1.4x^7$

c) $\left(-\frac{1}{3}x^5\right)\left(-\frac{2}{9}x^1\right)$ → $\left(\frac{1}{3}\right)\left(\frac{2}{9}\right)x^{5+1}$ → $\frac{2}{27}x^6$

OBJECTIVE 4: Using the Distributive Property to Multiply Polynomials

TASK 2: Use the distributive property to find each product. Then write your answer in standard form.

a) $5x(2x^3 + 6)$ → $10x^4 + 30x$

b) $-3x^2(5x^2 + 6x - 1)$ → $-15x^4 - 18x^3 + 3x^2$

c) $-6x^3(2x^2 - 9x + 2)$ → $-12x^5 + 54x^4 - 12x^3$

To Multiply Two Polynomials

Multiply each term of the first expression by each term of the second expression and then combine like terms. Use FOILing or Punnett Squares to Distribute.

TASK 3: Multiply. Write your answer in standard form. Show all work!

a) $(3x + 2)(2x - 5)$

$6x^2 + (-15x) + 4x + (-10)$

$6x^2 - 11x - 10$

b) $(5x - 2)(2x + 3)$

$10x^2 + 15x - 4x - 6$

$10x^2 + 11x - 6$

c) $(2x - y)^2 = (2x - y)(2x - y)$

$4x^2 - 2xy - 2xy + y^2$

$4x^2 - 4xy + y^2$

d) $(y + 2)(3y^2 - 4y + 2)$

$3y^3 - 4y^2 + 2y$

$+ 6y^2 - 8y + 4$

$3y^3 + 2y^2 - 6y + 4$

e) $(x + 4)(2x^2 - 3x + 5)$

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

$+ \quad 8x^2 - 12x + 20$

$2x^3 + 5x^2 - 7x + 20$

f) $(3a + b)^3 = (3a+b)(3a+b)(3a+b)$

$(9a^2 + 3ab + 3ab + b^2)(3a + b)$

$27a^3 + 18a^2b + 3ab^2$

$+ \quad 9a^2b + 6ab^2 + b^3$

$27a^3 + 27a^2b + 9ab^2 + b^3$

TASK 4: Multiply using Punnett Squares. Write your answer in standard form. Show all work!

a) $(2x^2 - 3x + 4)(x^2 + 5x - 2)$

	$2x^2$	$-3x$	$+4$
x^2	$2x^4$	$-3x^3$	$4x^2$
$+5x$	$10x^3$	$-15x^2$	$20x$
-2	$-4x^2$	$6x$	-8

$2x^4 + 7x^3 - 15x^2 + 26x - 8$

b) $(5x^2 + 2x - 2)(x^2 - x + 3)$

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

$5x^4 - 3x^3 + 11x^2 + 8x - 6$

c) $(x^2 + 5x - 2)(x^2 - x + 3)$

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

$x^4 + 4x^3 - 4x^2 + 17x - 6$

Two binomials: FOIL **Two trinomials: Punnett Square** **Mismatched: Distribute**

Which methods do you prefer and when?

Reminders to myself about what I struggled with Tasks & the CYU:

write answer in standard form.
always combine like terms (CLT).

Still need help with: