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Unit 7 Day 3 Notes

Multiplying Polynomials

Review: Classifying, Adding, and Subtracting Polynomials

For the following polynomials, perform the indicated operation. Be sure that your final answer is in standard form. Then, classify your polynomial by degree and number of terms.

*Combine like terms

1) $(12y^2 + 17y - 4) + (9y^2 - 13y + 3)$

$21y^2 + 4y - 1$

Deg: 2 → Quadratic

Terms: 3 → Trinomial

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

$2x^3 + 9x^2 - 3x - 12$

Deg: 3 → cubic

Terms: 4 → polynomial

*Distribute -1

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

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

$2x^2 + 3x - 8$

D: 2 → quadratic

T: 3 → trinomial

4) $(3a^2 + 2a - 2) - 1(a^2 - 3a + 7)$

$(3a^2 + 2a - 2) + (-a^2 + 3a - 7)$

$2a^2 + 5a - 9$

D: 2 → quadratic

T: 3 → trinomial

There are two methods that can be used to multiply polynomials – the distributive method and the box method.

Practice using each method for the following problem: $(2x + 1)(x - 3)$

a) The Distributive Method

$(2x+1)(x-3)$

$2x^2 - 6x$

$+ x - 3$

$2x^2 - 5x - 3$

b) The Box Method

	$2x$	$+1$
x	$2x^2$	x
-3	$-6x$	-3

$2x^2 - 5x - 3$

As you can see, the final answer will be the same regardless of the method that you use. When multiplying polynomials, **you may use either method**. The important thing to remember is that your final answer should always be written in standard form.

Box Distributive

Multiply the following polynomials using any method.

1) $2x(x-4)$

	x	-4
$2x$	$2x^2$	$-8x$

$2x^2-8x$

2) $(x+2)(x-9)$

x^2-9x

$+2x-18$

$x^2-7x-18$

3) $(x+6)(x+6)$

	x	$+6$
x	x^2	$6x$
$+6$	$6x$	36

$x^2+12x+36$

4) $(x+6)(x-6)$

x^2-6x

$+6x-36$

$x^2+0x-36$

x^2-36

5) $x(2x-3)$

	$2x$	-3
x	$2x^2$	$-3x$

$2x^2-3x$

6) $(x+5)^2 \rightarrow (x+5)(x+5)$

x^2+5x

$+5x+25$

$x^2+10x+25$