Chapter 5 - Quadratic Expressions

5.1 - Multiply Polynomials

Objective: Use the FOIL method to multiply polynomials

5.1 - Multiply Polynomials

DO IT NOW

Expand and Simplify:

1) $5(x-7)$

$= 5x - 35$

2) $3x(4x-5)$

$= 12x^2 - 15x$

3) $(x-7y+3) + (x+3y-1)$

$= x - 7y + 3 + x + 3y - 1$

$= -4y + 2x + 2$

ADDING - Drop the brackets, then collect like terms

4) $(x-7y+3) - (x+3y-1)$

$= x - 7y + 3 - x - 3y + 1$

$= -10y + 4$

SUBTRACTING - Apply '-' to each term in the second polynomial

DISTRIBUTIVE PROPERTY

* The number/letter in front applies to every term in the brackets.

$-5(x-7)$

* What happens when there is more than just one number or variable in front of the bracket?

$(x+1)(x+2)$

Polynomial - an algebraic expression formed by adding or subtracting terms

How do we multiply polynomials?

$(x + 1)(x + 2)$

FOIL!!!!

HOW TO USE THE FOIL METHOD

FOIL METHOD: You can find the product of two binomials by multiplying each term in the first binomial by each term in the second binomial. Then simplify by collecting like terms.

F IRST
OUTSIDE
INSIDE
LAST

$(x+2)(x+5)$

1

Simplify (x+2)(x+5) by using FOIL (the distributive property twice):

$(x+2)(x+5)$
$= x^2+5x+2x+10$
$= x^2+7x+10$

2 Simplify (x-2)(x+4) by using FOIL

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

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

$= x^2+2x-8$

3 Simplify:

$(3x + 7)(x - 5)$

$= 3x^2-15x+7x-35$

$= 3x^2-8x-35$

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4 Simplify:

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

$= -6x+8x^2+15-20x$

$= 8x^2-26x+15$

5 Simplify:

$(4x - 1)(3x - 2)$

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

$= 12x^2-11x+2$

6 Simplify:

$-2(4x - 5)(7x - 6)$

$= -2(28x^2 - 24x - 35x + 30)$

$= -2(28x^2 - 59x + 30)$

$= -56x^2 + 118x - 60$

7 Simplify:

$2(x + 7)(x - 3) - (4x + 3)(2x - 1)$

$= 2(x^2 - 3x + 7x - 21) - (8x^2 - 4x + 6x - 3)$

$= 2(x^2 + 4x - 21) - (8x^2 + 2x - 3)$

$= 2x^2 + 8x - 42 - 8x^2 - 2x + 3$

$= -6x^2 + 6x - 39$

8 Simplify:

$(2x + 5)(3x - 4) + 2(4x + 9)(2x - 1)$

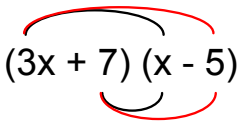
$22x^2 + 35x - 39$

When working with quadratics when will this skill be useful?

Going from factored form to standard form

HOW TO USE FOIL

FIRST
OUTSIDE
INSIDE
LAST



Note: You can find the product of two binomials by multiplying each term in the first binomial by each term in the second binomial. Then simplify by collecting like terms.

HOMEWORK

Pg. 217 #3-8 (aceg only) and #10