# 8 - 7
# Multiplying Polynomials

problems like...

$$(x + 2)(x + 3)$$

# FOIL method

First

Outer

Inner

Last

**Ex:** $(x + 3)(x + 2)$

$x^2 + 2x + 3x + 6$

$x^2 + 5x + 6$

**Ex:** $(x - 5)(x + 7)$

$x^2 + 7x - 5x - 35$

$x^2 + 2x - 35$

**Ex:** $(2y + 3)(6y - 7)$

$12y^2 - 14y + 18y - 21$

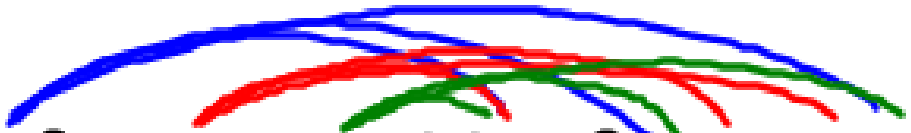
$12y^2 + 4y - 21$

# Distributive Property

**Ex:** $(4x + 9)(2x^2 - 5x + 3)$

$8x^3 - 20x^2 + 12x + 18x^2 - 45x + 27$

$8x^3 - 2x^2 - 33x + 27$



**Ex:** $(y^2 - 2y + 5)(6y^2 - 3y + 1)$

$6y^4 - 3y^3 + y^2 - 12y^3 + 6y^2 - 2y + 30y^2 - 15y + 5$

$$6y^4 - 15y^3 + 37y^2 - 17y + 5$$