

# Multiplying Polynomials Guided Notes

*always write your answers in standard form*

## Multiplying Monomials

a.  $(2x^3y^2)(3x^2y)$

$6x^5y^3$

b.  $(5x^5y)(10x^2y^2)$

$50x^7y^3$

c.  $2(x+3)$

$2x+6$

d.  $4(x^2+6x)$

$4x^2+24x$

## Multiplying a Monomial times a Trinomial

a.  $3ab(5a^2 + b + 1)$

$15a^3b + 3ab^2 + 3ab$

b.  $6pq(2p - q + 5)$

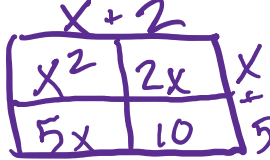
$12p^2q - 6pq^2 + 30pq$

c.  $4(3x^2 + 4x - 8)$

$12x^2 + 16x - 32$

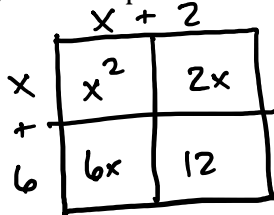
## Multiplying Binomials

1.  $(x + 2)(x + 5)$  Draw a picture and Simplify Algebraically.



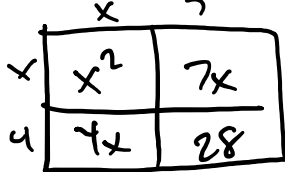
$(x+2)(x+5)$   
 $x^2 + 5x + 2x + 10$   
 $x^2 + 7x + 10$

2.  $(x + 6)(x + 2)$  Draw a picture and Simplify Algebraically.



$(x+2)(x+6)$   
 $x^2 + 6x + 2x + 12$   
 $x^2 + 8x + 12$

3.  $(x + 4)(x + 7)$  Draw a picture and Simplify Algebraically.



$(x+4)(x+7)$   
 $x^2 + 7x + 4x + 28$   
 $x^2 + 11x + 28$

4. Simplify:  $(x + 4)(x - 1)$

$x^2 + 3x - 4$

5. Simplify:  $(x - 7)(x - 3)$

$x^2 - 10x + 21$

What is "Foiling"?

Example:  $(x + 8)(x - 9)$

FIRST  $x^2$   
OUTER  $-9x$   
INNER  $8x$   
LAST  $-72$

$$x^2 - x - 72$$

- You do not have to multiply in the order of FOIL.
- You just have to make sure that you multiply every term in the first set of parentheses by every term in the second set of parentheses.

1.  $(x + 10)(x - 7)$

$$x^2 + 3x - 70$$

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

$$2x^2 + 7x - 15$$

3.  $(3x^2 + 1)(x - 6)$

$$3x^3 - 18x^2 + x - 6$$

Multiplying a Binomial times a Trinomial

1.  $(x + 4)(x^2 + 2x + 4)$

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

$$x^3 + 2x^2 + 4x + 4x^2 + 8x + 16$$
$$x^3 + 6x^2 + 12x + 16$$

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

Area Problem:

Find an expression for the area of the figure.

