

~~HW~~ Factoring Review

Trinomials with 2 variables.

$$\textcircled{a}x^2 + bx + \textcircled{c} \rightarrow$$

* GCF first

* look at factors that multiply to 'a · c' & add to 'b'

$$x^2 + 5x + 6$$
$$(x + 2)(x + 3)$$

Factors of 6
that add to 5
2, 3

$$x^2 + 5xy + 6y^2 \rightarrow x^2 + 5x + 6$$
$$(x + 2y)(x + 3y)$$

Diagram illustrating the factoring process for $x^2 + 5xy + 6y^2$. The expression is shown as $(x + 2y)(x + 3y)$. A green arrow points from x^2 to x in the first binomial. A blue arrow points from $6y^2$ to $3y$ in the second binomial. A red arrow points from $2y$ in the first binomial to $3y$ in the second binomial, with the label $2xy$ below it. Another red arrow points from x in the first binomial to $2y$ in the second binomial, with the label $+ 3xy$ below it. A final red arrow points from x in the first binomial to $3y$ in the second binomial, with the label $/ 5xy$ below it.

Factor: $a^2 - ab - 12b^2 = 0$

$$(a - 4b)(a + 3b)$$

$$-4ab$$

$$\frac{3ab}{-ab}$$

$$a^2 - a - 12$$
$$(a - 4)(a + 3)$$

3.7 - Expanding (MULTIPLYING) Polynomials

1. Rectangle Diagram
2. FOIL-ish $(x + 3)(x - 4)$
3. Distributive.

Expand:

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

	x^2	$2x$	-1
x	x^3	$2x^2$	$-x$
$+5$	$5x^2$	$10x$	-5

$$x^3 + \underline{2x^2} - \underline{x} + \underline{5x^2} + \underline{10x} - 5$$

* collect like terms

$$x^3 + 7x^2 + 9x - 5$$

2. FOIL-ISH

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


$$x^3 - 3x^2 + 2x + 4x^2 - 12x + 8$$

$$x^3 + x^2 - 10x + 8$$

$$(x+3)^2 = (x+3)(x+3)$$

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

$$x^2 + 3x + 3x + 9$$

$$x^2 + 6x + 9$$

$$(x+3)^2$$

* square the first x^2

* square the last $3^2 = 9$

$$x^2 + 6x + 9$$

* multiply the two and double

$$3 \cdot x = 3x$$

$$2(3x) = \underline{6x}$$

$$* (3a + 1)(2a + 5) - (a + 1)^2$$

$$3a(2a + 5) + 1(2a + 5) - [(a + 1)(a + 1)]$$

$$6a^2 + 15a + 2a + 5 - [a(a + 1) + 1(a + 1)]$$

$$6a^2 + 17a + 5 - [a^2 + a + a + 1]$$

$$* 6a^2 + 17a + 5 - (a^2 + 2a + 1)$$

$$* \underline{6a^2} + \underline{17a} + \underline{5} - \underline{a^2} - \underline{2a} - \underline{1}$$

$$* \underline{\underline{5a^2 + 15a + 4}}$$

one step

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

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

$$(x+1)(x^2 + 5x + 6)$$

$$\downarrow$$
$$(x)(x^2 + 5x + 6) + 1(x^2 + 5x + 6)$$

$$x^3 + 5x^2 + 6x + x^2 + 5x + 6$$

$$* x^3 + 6x^2 + 11x + 6$$

Do p. 186 - #5-10