Date: _____

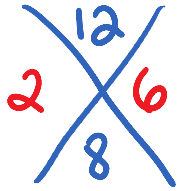
Lesson 5: Factor $x^2 + bx + c$

When we factor a trinomial the result is two binomials.

To factor $x^2 + bx + c$ we need to find to integers which have a ***product*** equal to *c* and ***sum*** to equal *b*.

Examples: *Factor. Check by expanding*

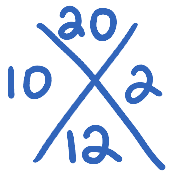
1) $x^2 + 8x + 12$



$(x+2)(x+6)$ FOIL!

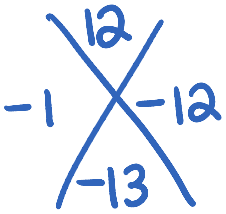
$= x^2 + 6x + 2x + 12 = x^2 + 8x + 12$

2) $a^2 + 12a + 20$



$(a+10)(a+2)$

3) $x^2 - 13x + 12$

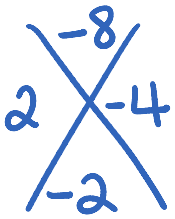


$(x-1)(x-12)$

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

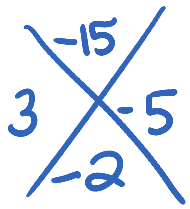
$= x^2 - 13x + 12$

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



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

5) $-15-2x+x^2$ $\Rightarrow x^2-2x-15$

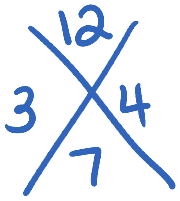


$(x+3)(x-5)$

$\hookrightarrow (3+x)(-5+x)$

6) $\frac{2x^2}{2}+\frac{14x}{2}+\frac{24}{2} = 2(x^2+7x+12)$

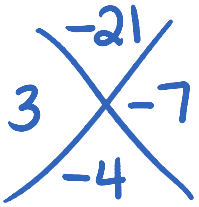
GCF=2



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

7) $\frac{-5y^2}{-5}+\frac{20y}{-5}+\frac{105}{-5} = -5(y^2-4y-21)$

GCF=-5



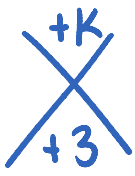
$= -5(y+3)(y-7)$

Determining Integral Values of k

8) $x^2+kx+18$

product	sum
1×18	19
-1×-18	-19
2×9	11
-2×-9	-11
3×6	9
-3×-6	-9

9) x^2+3x+k



sum	product
$0+3$	0
$1+2$	2
$5+(-2)$	-10

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Math 10FP *Marsh*

*any two integers with a sum of +3.