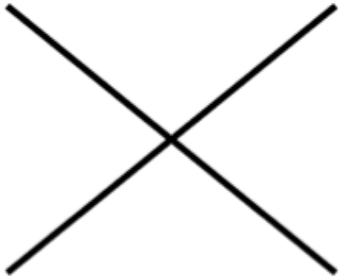



Factoring Quadratic Trinomials when a=1

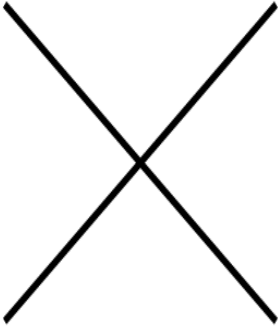

Name: _____

Question	Answer
What is a factor ?	A factor is a number or quantity that when multiplied with another produces a given number or expression.
What does factoring mean?	Factoring is the decomposition of an object (for example, a number, a polynomial, or a matrix) into a product of other objects, or <i>factors</i> , which when multiplied together give the original.
What is a quadratic trinomial ?	A quadratic trinomial is a polynomial that has 3 terms and a degree of 2. $n^2 + 4n - 12$
What are the factors of the expression $n^2 + 4n - 12$?	These two binomials are factors of $n^2 + 4n - 12$. When multiplied together, they give the original polynomial, $n^2 + 4n - 12$. $(n - 2)(n + 6)$
How do we go from $n^2 + 4n - 12$ to $(n - 2)(n + 6)$?	Factor!
Step 1: Find a, b, and c	$n^2 + 4n - 12$ Remember $ax^2 + bx + c$ $a = 1 \quad b = 4 \quad c = -12$
Step 2: Find 2 numbers that have a product equal to ac and a sum equal to b .	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>X-Method</p>  </div> <div style="text-align: right;"> <p>$ac = -12$</p> <p>$b = 4$</p> <p>ac goes on top of the x, b goes on the bottom, and the two numbers that have a product of -12 and a sum of 4 go on the sides</p> </div> </div>

<p>Step 2 Continued... Make a list of the factors of -12 and find the 2 that have a sum of 4. Fill in your X on the other side.</p>	<table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">Factors of -12</td> </tr> <tr> <td style="text-align: center;">+ or - 1, 12, 6, 2, 4, 3</td> </tr> </table>	Factors of -12	+ or - 1, 12, 6, 2, 4, 3
Factors of -12			
+ or - 1, 12, 6, 2, 4, 3			
<p>Step 3: Factor. Place the two numbers you found in the binomials.</p>	$(x + 6)(x - 2)$		
<p>Step 4: To check that you factored correctly, multiply the two binomials using any method and see if you get the original trinomial.</p>	$(x + 6)(x - 2)$ $x^2 - 2x + 6x - 12$ $x^2 + 4x - 12$ 		

Practice

Factoring Trinomials (a=1) **Factor each completely.**

1	$k^2 - 13k + 40$		
2	$m^2 + 2m - 24$	