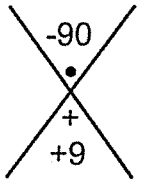
Algebra 1 Factoring Trinomials Spring 2015 Name:

When you are done with this sheet you should be able to factor a trinomial into two binomials For example: You should be able to factor $6x^2 + 17x - 14$ into $(2x + 7)(3x - 2)$

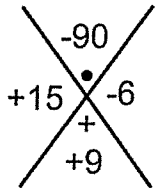
A Quadratic Equation in Standard Form looks like this: $ax^2+bx + c$ where a is the coefficient of the quadratic term, b is the coefficient of the linear term, and c is the constant.

The following are the steps you take to factor the trinomial $10Q^2+9Q - 9$

Step 1 Draw an X. Place the product $a \cdot c$ at the top of the X. Place b at the bottom of the X. See below



Now find two numbers that multiply to –90 and add to +9



Step 2 Draw a box. Place the first term $10Q^2$ in the upper left corner and the constant –9 in the lower right corner. Take the two numbers from the X and make them $+15Q$ and $-6Q$ and place them in the other two corners. It doesn't matter which one you put in the upper right and which one you put in the lower left.

$10Q^2$	+15Q
-6Q	-9

Step 3 Find the GCF of the two terms in the top row and put it to the left of $10Q^2$

5Q	$10Q^2$	+15Q
	-6Q	-9

Step 4 Find the remaining 3 spots on the outside of the box.

	2Q	+3
5Q	$10Q^2$	+15Q
-3	-6Q	-9

As a check make sure the two constants on the outside of the box multiply to the constant in the lower right corner of the box.

Step 5 Put the $2Q + 3$ and $5Q - 3$ into parentheses and your done factoring:

$10Q^2 + 9Q - 9 = (2Q + 3)(5Q - 3)$

Use this method to factor the trinomials on the back of this paper. To check your answers you can expand your two factors to see if you get the original trinomial as a result.

1. $8b^2 + 22b + 5 = (\quad)(\quad)$

2. $8c^2 - 19c + 6 = (\quad)(\quad)$

3. $15g^2 - 14g - 8 = (\quad)(\quad)$

4. $12m^2 + 28m - 5 = (\quad)(\quad)$

5. $9k^2 - 6k - 8 = (\quad)(\quad)$

6. $w^2 - 19w + 84 = (\quad)(\quad)$