## Day 2: Factoring Quadratics (a=1 and a not 1)

**Review:** Factor the following by GCF.

1) $-33x^2 + 42$

2) $42x^2 + 28x$

Before factoring a quadratic expression, always make sure that it is in standard form. Standard form of a quadratic is $y = ax^2 + bx + c$.

There are many different ways to factor quadratic trinomials- the method that we are going to use this year is called the x method. As long as the trinomial you are working with is factorable, the x method will always work.

**Example:** $y = 2x^2 - 5x - 12$

| **Example Work** | **Steps** |
|---|---|
| 1) Draw a large X<br>2) Multiply $a \cdot c$ → this number goes on the top of your X<br>3) Put $b$ on the bottom of your X<br>4) List out the factors of the number on top of the X<br>5) Find two factors that multiply the top number and add to the bottom number; place these numbers on the sides of the X<br>6) Divide the side numbers by $a$<br>7) Reduce your fractions (if it is a number over 1, leave it as a fraction over 1)<br>8) For each fraction, the denominator will become a coefficient of x and the numerator will become the constant<br>$(\#x + \#)(\#x + \#)$ | |

1) $y = x^2 + 4x - 12$

2) $x^2 + 11x + 18 = y$

3) $y = x^2 - 5x + 4$

4) $8x^2 + 2x - 3 = y$

**When factoring, it is important that you first check to see if there is a GCF among all the terms in the expression that you want to factor. If there is, you must factor out the GCF before you begin using the X method of factoring.**

1) $12x^2 + 14x + 4 = y$

2) $y = 3x^2 - 9x - 30$