**Quadratic Equations Review**

* **Solving Quadratics**
	+ **By Factoring**

You must find 2 numbers that when you multiply give you the last term and when you add them give you the center term.

 Last sign positive: Use 2 positives to add to a positive center OR

 Use 2 negatives to add to a negative center

 Last sign negative: Must use a positive and a negative.

The middle term has the same sign as the larger number.

After finding the factors, set each equal to zero and solve for the x solutions!

 #1 Solve by Factoring $x^{2}+11x+18=0$

 #2 Solve by Factoring $x^{2}-15x+50=0$

 #3 Solve by Factoring $x^{2}+4x-12=0$

 #4 Solve by Factoring $x^{2}-x-56=0$

 #5 Solve by Factoring $-5v^{2} + 30v= 40$

* **Vertex, Min/Max**

The vertex is the full point (x,y) and the min or max is just the y-value. (how high or low it goes on the y axis)

 #6 Formula for AOS/Vertex:

For the equation $y=5x^{2}+10x+20$

 #7 Does it form a U or a Mountain?

#8 Does it have a Minimum or Maximum:

#9 Axis of Symmetry:

#10 Vertex:

#11 y-intercept:

* **Word Problems**

#12 An object is blasted upward at an initial velocity, *v0*, of 240 ft/s. The height, *h(t)*, of the object is a function of time, *t* (in seconds), and is given by the formula *h(t) = 240t - 16t2.* How long will it take the object to hit the ground after takeoff?

#13: Miranda throws a set of keys up to her brother, who is standing on a third-story balcony with his hands 38 feet above the ground. If Miranda throws the keys with an initial velocity of 40 feet per second, the equation$ h=-16t^{2}+40t+5$ gives the height *h* of the keys after *t* seconds.

1. How long does it take the keys to reach their highest point?
2. How high do the keys reach?
3. How high are the keys after 2 seconds?