Name_____

Date_____

Advanced Algebra

Learning Targets

**Unit 4 Quadratics**

**Extra resource can be checking out the green advanced algebra book from the media center**

**Videos are posted on www.washburngulliford.weebly.com**

Learning Targets: This is an organized list of learning targets to help you prepare for the Unit Test. Please rank each topic using the provided scale.

If you are self assessing in the "I can do this topic with some help" or " I do not understand this topic at all" you want to make sure to get questions answered BEFORE the unit test.

**If you are a low rank on a topic you should: look in your notes, do some research on the topic, look in <u>your green book in CHAPTER 4page 193-199,and Chapter 7 Page 361-398,</u> ask as a friend who has a higher rank on that topic than you, as a question to the teacher, go to the math lab during 4th hour lunch, look at the website videos…**

| Term | **Where can I look up extra support on this learning target** | **I could teach this topic to others** | **I can do this topic on my own** | **I can do this topic with some help** | **I do not understand this topic at all** |
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| I know the three quadratic forms:<br>**General Form**<br>**Vertex Form**<br>**Factored Form** | Page 371<br><br>$y=ax^2=bx+c$<br>$y=a(x-h)^2+k$<br>$y=a(x-h)(x-k)$ | | | | |
| I can easily move between the forms of a quadratic given information about 1 of the forms | Week #1 Homework and Week number 2 homework | | | | |

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| I can factor with a coefficient of 1 | See Extra Support Material<br>This is posted on the portal and on the website<br>**Video is posted on www.washburngulliford.weebly.com** | | | | |
| I can factor with a coefficient of more than 1 | See Extra Support Material | | | | |
| I can use zero product property | See Extra Support Material<br>This is posted on the portal and on the website :<br>www.washburngulliford.weebly.com | | | | |
| I can use finite difference to find the degree and equation of a polynomial | This is just subtracting. Look at page 361 | | | | |
| I can multiply two binomials using the box or foil | See Extra Support Materials | | | | |
| I can find the zeros of a quadratic | This can be done by using the quadratic formula or using the zero product property after you factor the problem. | | | | |
| I can find the vertex of a quadratic | This is a very big essential concept for the entire unit!<br>The process is to<br>1) Find the roots<br>2) Add the roots<br>3) Divide the sum by 2<br>4) Do VARS of that value to find the corresponding y value of the vertex | | | | |
| I can write a quadratic in Vertex form | This is a very important concept that comes from out work in Unit 2. We first learned<br>f(x)=a(x-h)+k<br>We should already know that h is a horizontal shift and k is a vertical shift. So you can write the vertex from by just finding the vertex and putting the numbers where they go into this essential concept from unit 2:<br>Y=a(x-h)+k | | | | |

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| I can complete the square as a way to write a quadratic into Vertex form | Page 377<br>This is a really good method if you just need to put the form into vertex form.<br>**There is a video posted on [www.washburngulliford.weebly.com](http://www.washburngulliford.weebly.com)**<br><br>**This is a great way to solve any quadratic if the coefficient is 1.**<br>**Example:**<br>**$y=x^2+10x-18$**<br>**$y= (x^2+10x+\_\_\_\_\_)-\_\_\_-18$ I put 25 into the blanks**<br>**$y=(x^2+10x+25)-25-18$**<br>**$y=(x+5)^2-43$** | | | | |
| I can use the quadratic formula | Page 385 or see the extra support material posted<br>We also practiced using the quadratic formula on week #2 homework<br>$$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$$<br><br>**There is a class video on www.washburngulliford.weebly.com** | | | | |
| I know what the Discriminant is and what it tell me. | The discriminant is given by the formula $b^2-4(a)(c)$<br>The following three things could happen:<br>1) If $b^2-4ac< 0$, then there are 2 conjugate pairs imaginary roots<br>2) If $b^2-4ac= 0$, then there is 1 real root called a double root<br>3) If $b^2-4ac>0$, there are two different real roots | | | | |
| I am aware than there is a number set that deals with complex numbers | Page 391:<br>**Note: IN this class we only deal with an introduction to this topic. It will be CONTINUED in other classes.**<br>**You need to know that**<br>**$i^2=-1$**<br>**Your answers to an imaginary root will always be in the form a+bi and a-bi** | | | | |
| I know what a conjugate pair is | Page 391<br>a+bi and a-bi<br><br>Work the example $y=x^2-8x+22$<br>With the quadratic formula and you will get 2 numbers in this form | | | | |

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| I can maximize the area of a fence given a fixed perimeter. I understand that this graph will be a parabola! | Very important application;<br>You should be able to do this with both a 4 sided fence and a three sided fence that uses an existing wall as one side.<br><br>**This is the return of Rancher Gonzales. We have worked with Rancher Gonzales many times during this unit.** | | | | |
| I can maximize the volume of a box | We did this in Unit 2! It comes up again in Unit 4 and 5<br>You should be mastering this | | | | |
| I can write the equation of a parabola given the roots and a point | Example: A parabola has roots at 2 and -8. This parabola passes through the point(3,44). Write the equation of this parabola.<br>Y=a(x-2)(x+8)<br>44=a(3-2)(3+8)<br>44=11a<br>A=4<br>So the equation is :<br>**Y=4(x-2)(x+8) Factored**<br>**Y=4($x^2$+6x-16) or 4$x^2$+24x-64 General**<br>**Y=4(x+3)$^2$-100**<br><br>There is a video posted on **www.wasburngulliford.weebly.com** | | | | |
| I can write the equation of a parabola given the axis of symmetry, one root and a point | | | | | |