Name_____

Date_____

Advanced Algebra

Unit 4: Quadratics Classwork/ Assignment #10

Describe/Transform everything we should be able to do given the following forms of the quadratic.

For example, you should be able to Factor- Why?? To find the roots. If I can find the roots, I can find the vertex (add the roots and divide by 2). If I know the vertex, I can write it in Vertex form (this is just a shift which we spend all of Chapter 2 doing. I could make a box to multiply something out into general form.

I have started you out what you should be able to do very easily based on the form that is given to you.

1) Given $y= x^2+ 8x+12$

Factored Form

$(x+6)(x+2)$

If I know factored form, I should easily be able to find the roots.

-6 and -2

If I know the roots, I should easily be able to find the Vertex. This is adding the roots and dividing by 2

$\frac{-6+-2}{2}$ $(-4,-4)$

Vertex

2) Given $y= 2(x-4)(x+10)$

I should be able to easily find the roots

4 and -10

If I can find the roots, I should easily be able to find the Vertex

$\frac{4+-10}{2}$

If I know the vertex, I can easily write the equation in vertex form.

Vertex $(-3,-98)$

$y=2(x+3)^2-98$

3) Given $y= 2(x-8)^2-8$

If I know vertex form, I should easily be able to look at the problem and know the vertex.

$(8,-8)$

I should also be able to easily multiply something out. I can do this using FOIL or by using the box method. So I should easily go from vertex to general form

$2(x^2-16x+64)$

$2x^2-32x+128-8$

$2x^2-32x+120$

Major Learning Target

You try. Find all three forms and all the critical information about the parabola. Critical information is always the vertex, the roots, the y intercept, and the a value.

1) $y= x^2+12x+27$

$(x+9)(x+3)$ Factored Form

$\frac{-9+-3}{2}$ $(-6,-9)$ Vertex

$\boxed{y=(x+6)^2-9}$ Vertex Form

2) $y= x^2-5x-36$

$(x-9)(x+4)$ Factored Form

-9 and -4

$\frac{9+-4}{2}$ $(2.5,-42.25)$

$\boxed{y=(x-2.5)^2-42.25}$

3) $y= 4(x-10)(x+6)$

Roots: 10 and -6

$\frac{10+-6}{2}=(2,-256)$

$\boxed{y=4(x-2)^2-256}$ Vertex Form

$4(x^2-4x-60)$ $\boxed{4x^2-16x-240}$ General Form

4) $y= -2(x-3)^2+7$

Roots $(x-3)^2=\frac{7}{2}$

$x-3=\pm 1,87$ Roots

$\boxed{4,87 \quad 1.13}$

$y=-2(x-4,87)(x-1.13)$ Factored

$-2(x^2-6x+9)$ $\boxed{-2x^2-12x-11}$

5) $y= 6(x+2)(x+10)$

Roots -2 and -10

$\frac{-2+-10}{2}=(-6,-96)$

$\boxed{y=6(x+6)^2-96}$ Vertex Form

$6(x^2+12x+20)$

$\boxed{6x^2+72x+120}$ General Form

6) $y= 4(x-8)^2-16$

Roots: $(x-8)^2=\frac{16}{4}$

$x=8\pm 2$

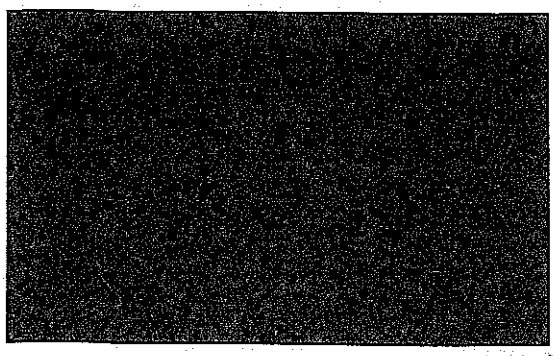
$y=4(x-10)(x-6)$

$4(x^2-16x+64)$

$4x^2-64x+256$

$\boxed{4x^2-64x+24(}$

Return of Rancher Gonzales. This time Rancher Gonzales has 600 feet of material to use to build his rectangular fence. You should be able to look at your work from before and figure out what quadratic equations describe this scenario.



Goal: To write the quadratic equation that describes this scenario

100 | $2,000$ | 100

$2w$

$(100, 2,000)$

$2,000= a(100-0)(100-300)$

$2000 = -20000a$

$-1 = a$

$y=a(x-0)(x-300)$

0 and 300

$(150, 22,500)$

$y=-1(x-0)(x-3($