Name_____

Date_____

Advanced Algebra:

Unit 4 quadratics

I can use my calculator to find the corresponding y value. **Use your VARS feature to find the corresponding y value that goes with the given x value.**

$Y=X^2 + 4x + 6$		$Y=3x^2-2x+8$		$Y=-x^2 + x + 1$		$20x^2-110x+.5$		$-35x^2+41x+83$	
x	y	x	y	x	y	x	y	x	y
0		0		-3		-10		-.4	
1		1		-2		-3		-.01	
2		2		-1		0		0	
3		3		0		2		3.2	
4		4		1		7		8	
5		5		2		19		9.65	

I can move between forms of a quadratic. Fill in the following table:

General Form	Factored Form	Vertex form
$Y = 2x^2 + 8x - 24$		
	$Y = 2 (x-8) (x+10$	
		$Y = 2(x-1)^2-50$

I know what key numbers of the quadratic tell me. Fill in the following chart:

Given $f(x) = ax^2 + bx + c$…

This part…..	Tells me….
a	
c	

How do you find the vertex of a quadratic function?

Use the function $y = x^2 + 1x - 12$ to help you give specific steps when you write.

Solve the following quadratic equations. You first want to use **your algebra skills and get EVERYTHING on one side.** Once you do that you can use the quadratic formula to solve. The quadratic formula is provided here.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Example: Solve the equation $4x^2 + 4x = -2x^2 + 2x + 20$

Using your algebra skills you want to get everything to 1 side.

$6x^2 + 2x - 20 = 0$.....Now you can simply put the numbers into the quadratic formula.

$$x = \frac{-2 \pm \sqrt{2^2 - 4(6)(-20)}}{2(6)}$$

$$x = \frac{-2 \pm \sqrt{484}}{12}$$

$\frac{-2+22}{12}$ or $\frac{-2-22}{12}$ using your calculator you get $\frac{5}{3}$ and -2

These are the roots....Now you solve the following

1) $3x^2 + 5x = 2x^2 + 2x + 18$ 2) $4x^2 - 6x - 48 = -2x^2 + 6x$

2) $-6x^2 - 30x + 90 = -16x^2 + 30x$ 4) $3x^2 - 2x + 18 = 16x - 3$