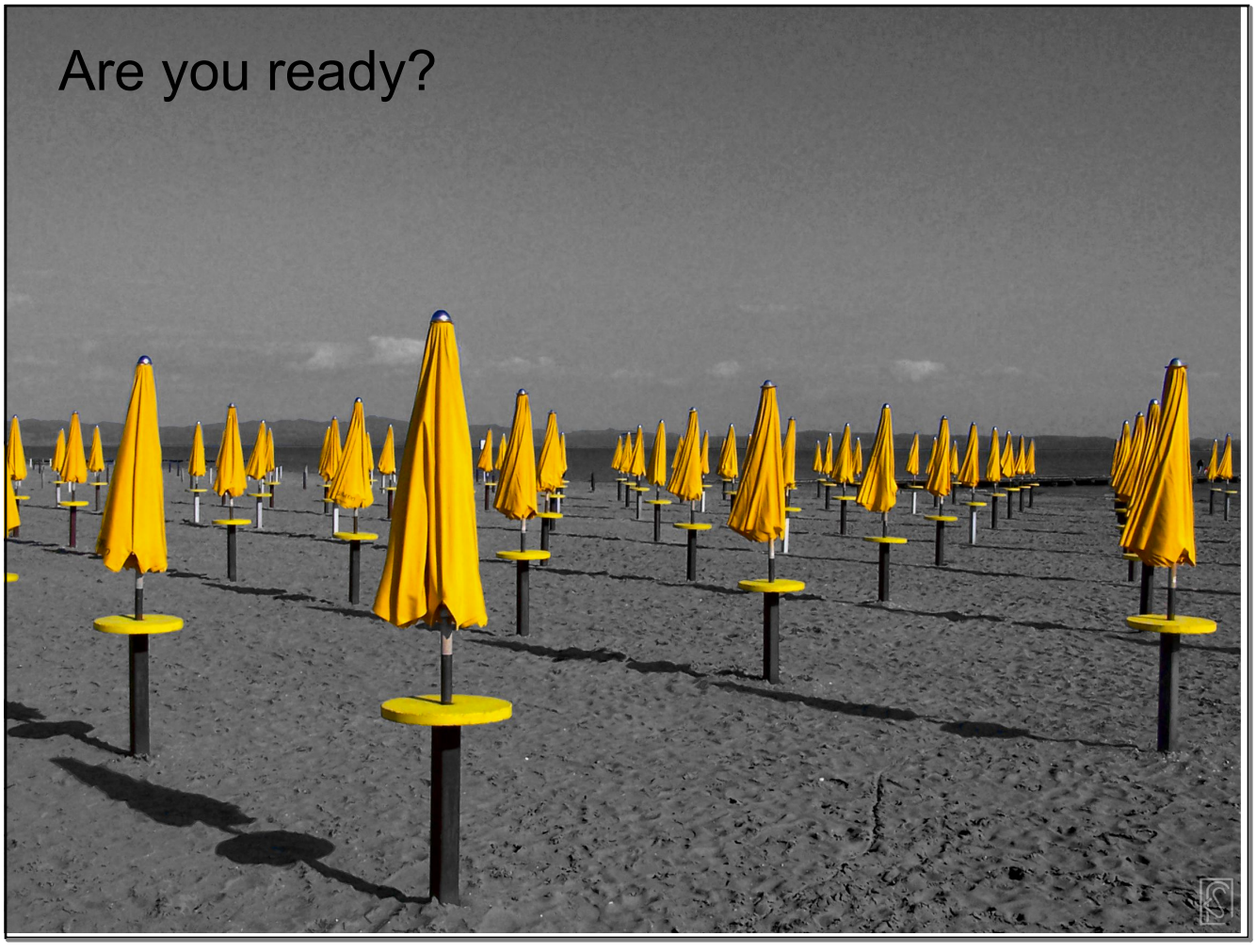

Are you ready?

Chapter 4 Transformation of Graphs
aka Lots of Graphing!

Goals:

quadratic equations

graphs

IC 4.1.1 thru 4.1.2

HW 4-18 to 4-28 and 4-39 to 4-41

Give the three equations for a quadratic,
What do the parts of each equation do?

Standard Form:

Intercept Form:

Vertex Form:

Give the Quadratic Formula:

What does it find?

Give the equation for the line of symmetry:

What does it find?

What is the Discriminant?

What does it tell you?

Finding the coordinates of the vertex:

Find the coordinates of the vertex:

$y = \frac{1}{2}x^2 - 6x - 14$

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

$y = 2/17\ (x + 2)(x - 4)$

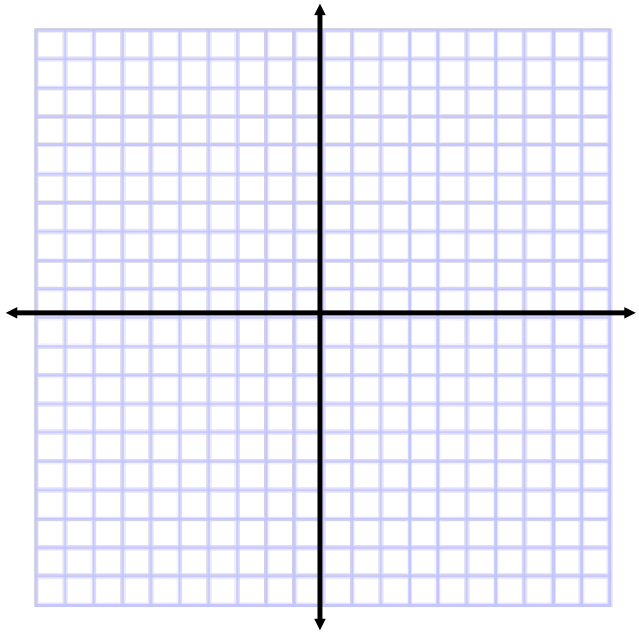
Std Form

Int. Form

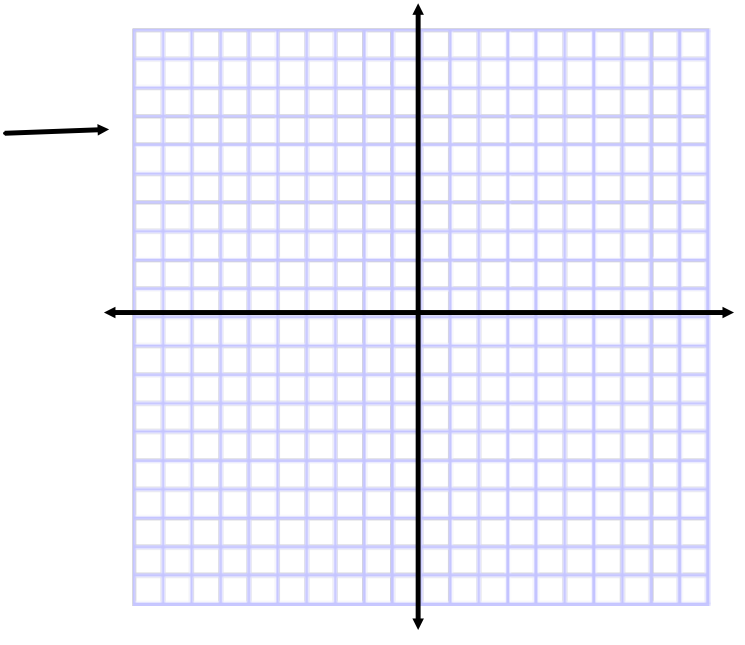
Vertex Form

$f(x)=-x^2-6x-8$		
		$f(x)=2(x-4)^2-2$
	$f(x)=\frac{1}{5}(x-3)(x+7)$	
		$f(x)=(x-1)^2-4$

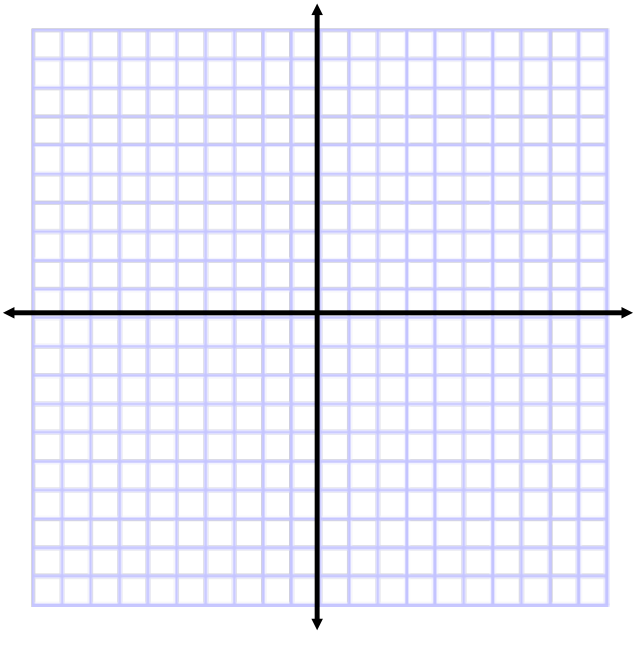
What are the important points of a parabola?



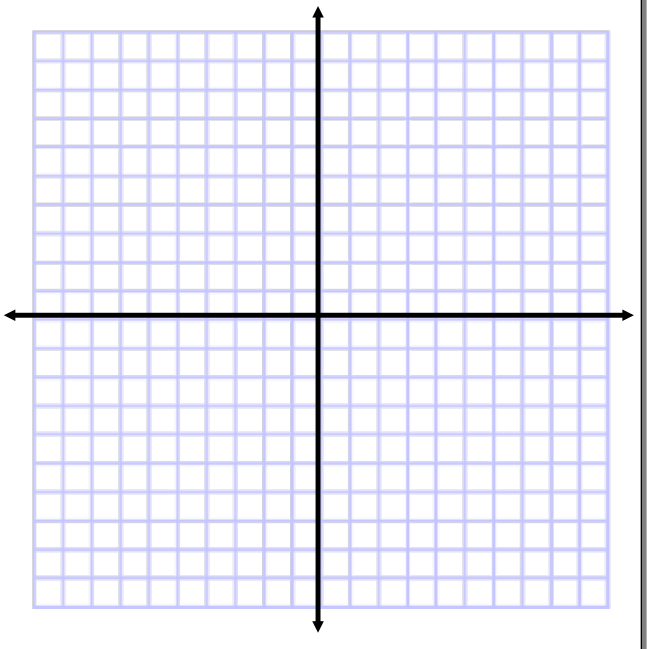
Graph the parabola $y = x^2$. Plot points.
Use a whole sheet of graph paper.
When you are sure that your graph is complete and accurate, trace over it in colored pencil. This is the **parent graph**.
Use a graph like this



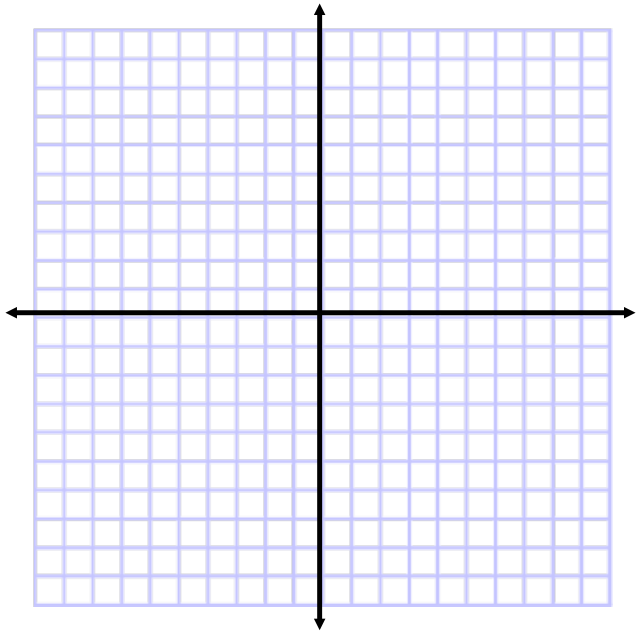
Find a way to change the equation to make the **parent graph** *stretch vertically*. The new parabola should have the same vertex and orientation.



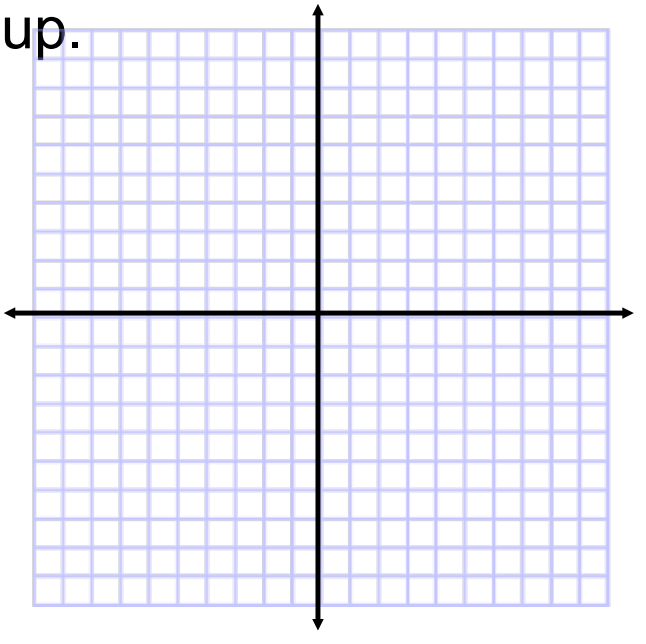
Find a way to change the equation to make the **parent graph** *compress vertically*. The points will seem to rise away from the vertex less quickly.



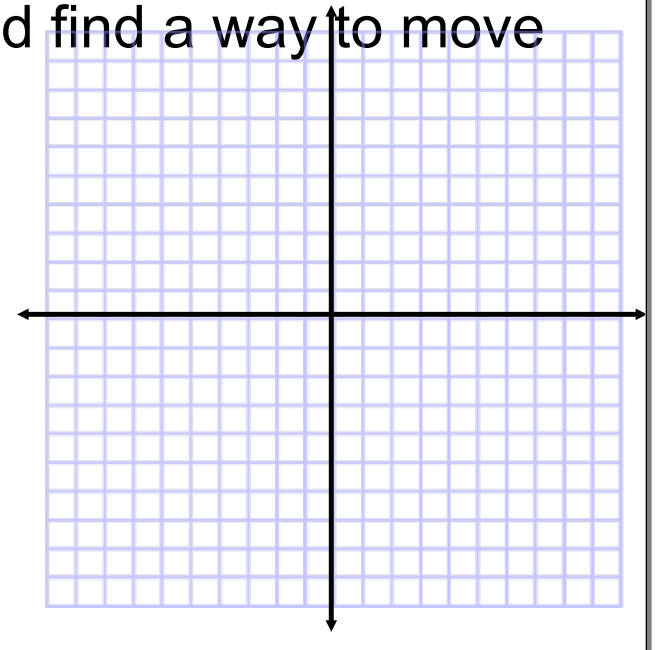
Find a way to change the equation to make the **parent graph** *open downward.* The new parabola should be a reflection over the x-axis of the **parent graph**.



Find a way to change the equation to make the **parent graph** *move 5 units down*. Your new parabola should look the same but the vertex will be at (0, -5). Also, from this, you should find a way to move the graph up.

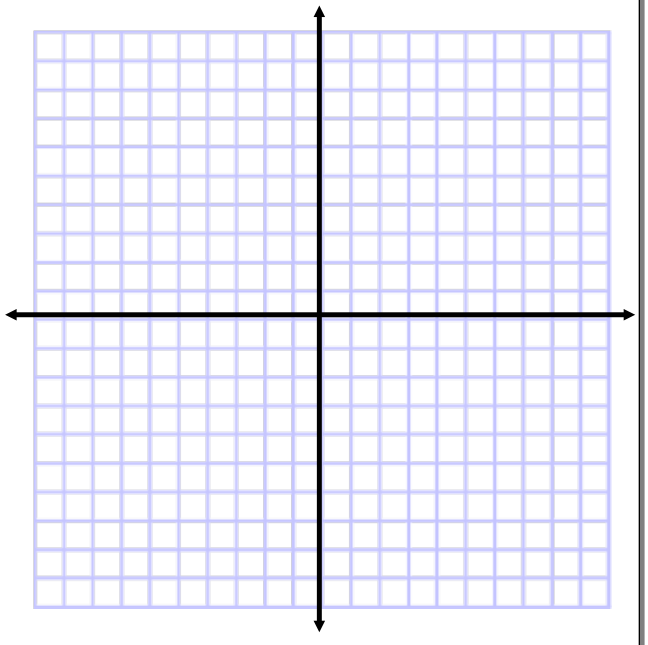


Find a way to change the equation to make the **parent graph** *move 3 units to the right*. Your new parabola should be the same as the **parent graph**, except the vertex should be at (3, 0). Also, from this, you should find a way to move the graph to the left.



let's see how you do...

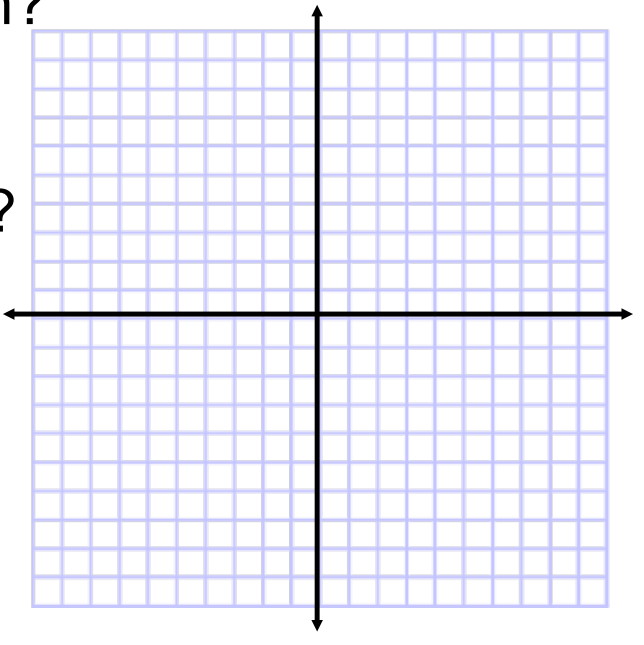
Find a way to change the equation to make the **parent graph** *move 3 units to the left* and *stretch vertically*.



Make the **parent graph** *vertically compressed, open down, move 6 units up and move 2 units left*.

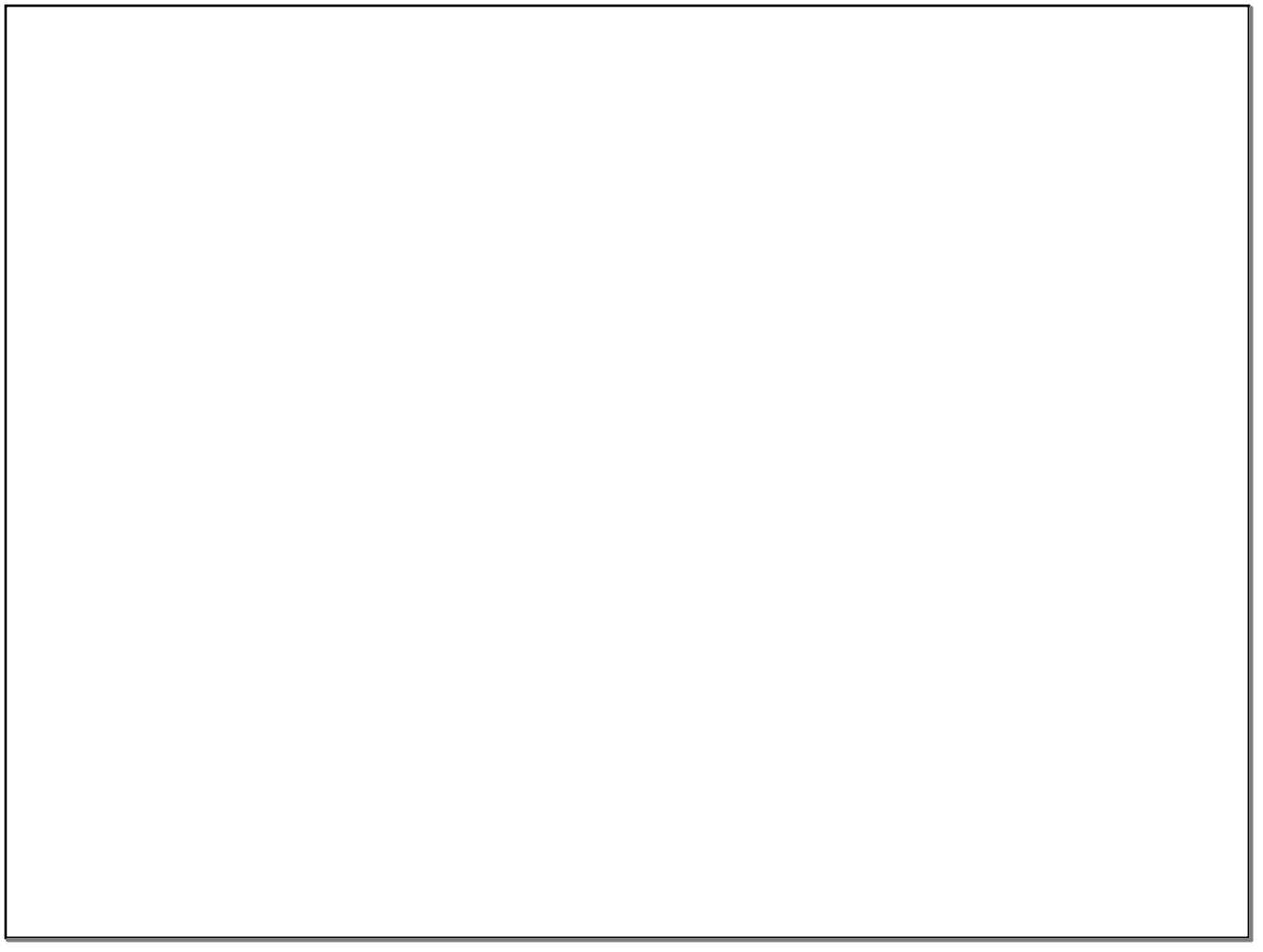
What is the new equation?

Where is the new vertex?



For each of these give the coordinates of the vertex, the x-intercepts and y-intercept and say whether it opens up or down.

	Vertex	x-ints	y-ints	up/down
$y=(x+9)^2$				
$y=x^2+7$				
$y=3x^2$				
$y=-(x-7)^2+6$				
$y=\frac{1}{3}(x-1)^2$				
$y=2(x+3)^2-8$				

HW 4-18 to 4-28 and 4-39 to 4-41

September 13, 2018