The graph of $y=ax^2 + c$

a	**a>0**	**a<0**
	Opens Up	Opens Down
	smaller a	**bigger a**
	Wider	Narrower

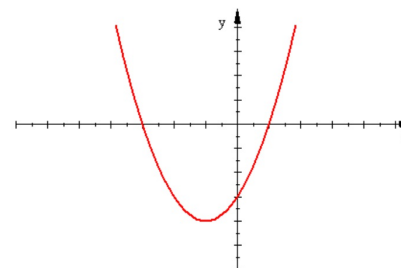| **c**	**c>0**	**c<0**
	Moves Up	Moves Down

Vertex $(0 , c)$

The vertex

The lowest or highest point on a Parabola.

Line of Symmetry   LOS

Vertical Line that passes through the Vertex.

Find the coordinates of the vertex and the equation of the LOS for each quadratic.

	Vertex	Eq of LOS
1. $y = x^2 - 3$	$(0, -3)$	$X = 0$
2. $y = 5x^2 + 7$	$(0, 7)$	$X = 0$

Graphing $y=ax^2 + c$

Graph $y = 3x^2 - 5$ with at least five points.

4. Use the LOS to find two more points. Connect these five points.

Opens UP   Moved 5 units down

1. Find the vertex $(0, -5)$

2. LOS: x = 0

3. Use a table to find two other points and plot them.

X	Y
1	-2
2	7
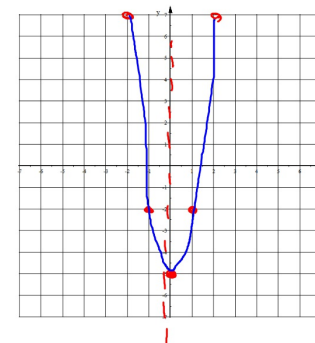
Graphing parabolas with the equation: $y = ax^2 + c$

Graph this parabola using at least five points

$$y = -2x^2 + 7$$

Upside down
moved 7 units up

Vertex is (0,7)

LOS: x = 0

X	Y
1	5
2	-1

plot these points
and reflect over
the LOS.