

Graphing Quadratics in Standard Form

Standard Form: $f(x) = ax^2 + bx + c$

To graph: ① Make a Table of Values

x	y
—	
—	
vertex → —	
—	
—	

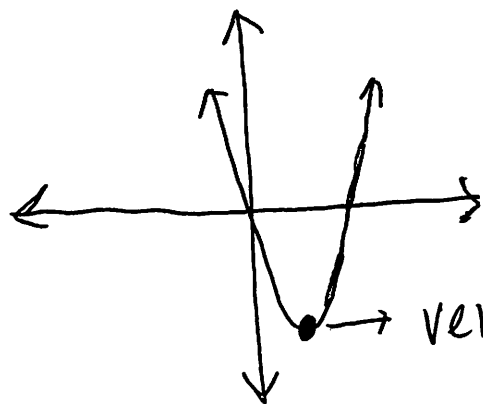
② Find x-value of vertex

$$x = \frac{-b}{2a} \quad \left(\begin{array}{l} \text{x-value of} \\ \text{vertex} \end{array} \right)$$

③ Find y-values (Range)

* Plug in each x-value into the equation to get y-values.

④ Plot the points



vertex → (changing direction point)
→ (x, y)

Axis of Symmetry: → (vertical line of symmetry)
→ $x =$ x-value of vertex

Axis of Symmetry

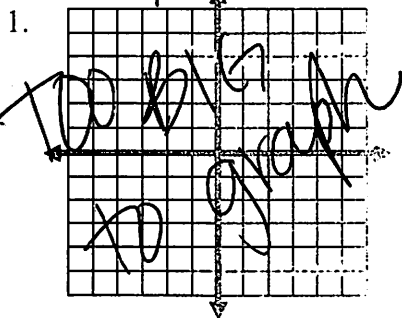
Graph the following. Make a table of values for each graph then state the Vertex and Axis of Symmetry.

1) $y = -x^2 + 6x + 13$

$x = \frac{-b}{2a}$
 $x = \frac{-6}{-2}$

x	y
1	18
2	21
3	22
4	21
5	18

vertex \rightarrow



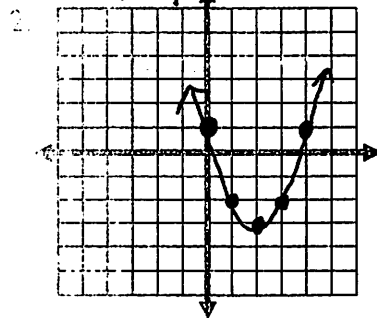
Vertex: (3, 22)

AOS: $x = 3$

2) $y = x^2 - 4x + 1$

$\frac{-b}{2a} = \frac{4}{2} = 2$

x	y
0	1
1	-2
2	-3
3	-2
4	1



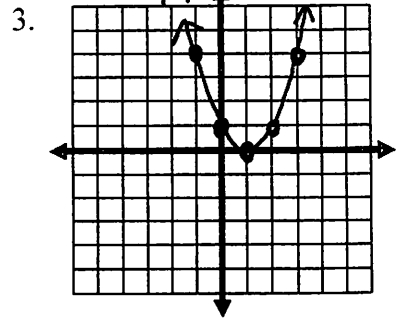
Vertex: (2, -3)

AOS: $x = 2$

3) $y = x^2 - 2x + 1$

$\frac{-b}{2a} = \frac{2}{2} = 1$

x	y
-1	4
0	1
1	0
2	1
3	4



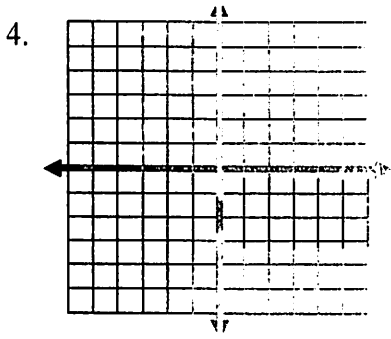
Vertex: (1, 0)

AOS: $x = 1$

4) $y = x^2 - 4x + 6$

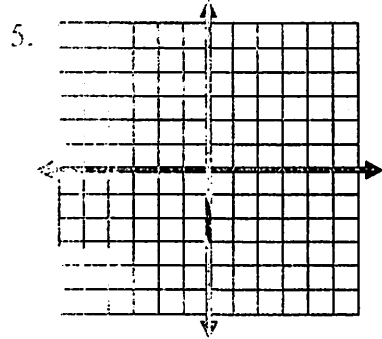
5) $y = -3x^2 + 6x$

6) $y = x^2 + 2x - 1$



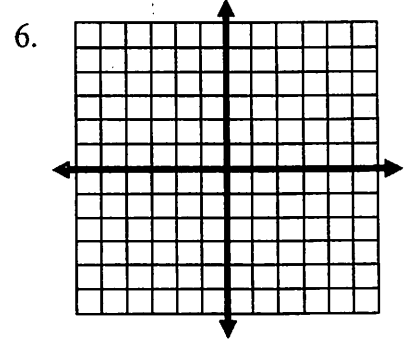
Vertex: _____

AOS: _____



Vertex: _____

AOS: _____



Vertex: _____

AOS: _____