Algebra II
4.1 Graphing Quadratic Functions (Parabolas)

Obj: to graph parabolas using the
vertex format.

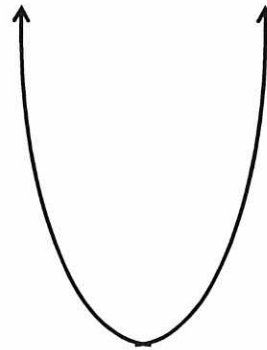Quadratic: X^2

Linear: X

Parabola: $y = x^2$ ↺

Vertex: highest / lowest point
(max or min)

Axis of Symmetry:
Vertical line that goes
through the vertex.

Parabola:

Vertex : Lowest or highest point on the
parabola. (max or min)
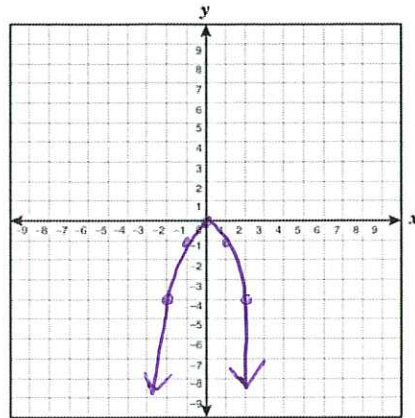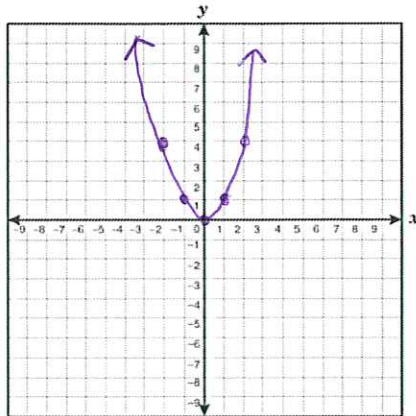
Axis of Symmetry: The vertical line through
the vertex.

Graph each of the following. Include a table of values of at least 5 points.

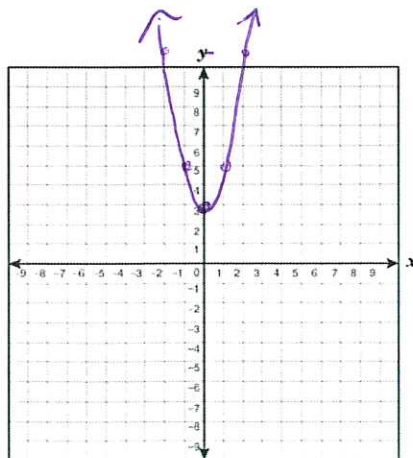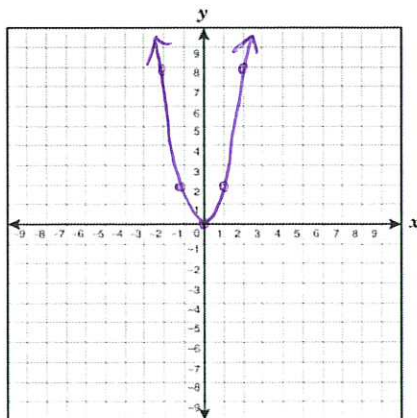$y=x^2$

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

$y=-x^2$

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

Graph each of the following. Include a table of values of at least 5 points.

$y=2x^2$

x	y
-2	8
-1	2
0	0
1	2
2	8

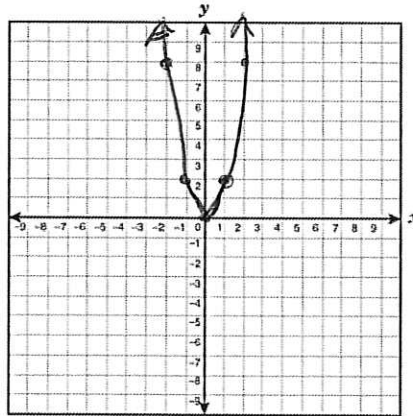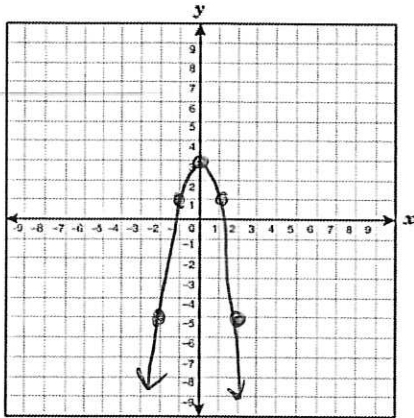$y=2x^2+3$

x	y
-2	11
-1	5
0	3
1	5
2	11

2

Graph each of the following. Include a table of values
of at least 5 points.

$y=-2x^2+3$

$y=\frac{1}{2}x^2$

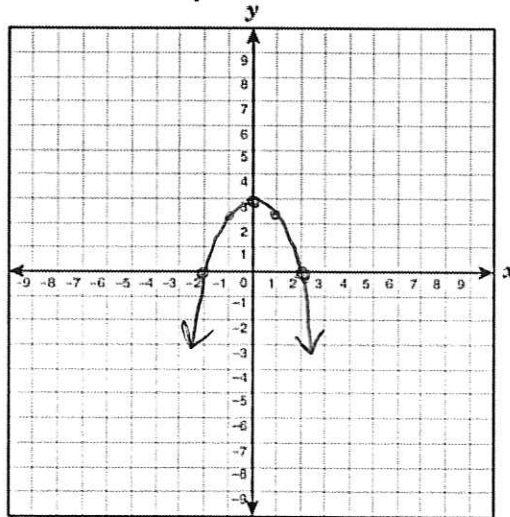| X	Y
-2	-5
-1	1
0	3
1	1
2	-5

X	Y
-4	8
-2	2
0	0
2	2
4	8

Graph each of the following. Include a table of values
of at least 5 points.

$y=-3/4\ x^2+3$

X	Y
-2	0
-1	2.25
0	3
1	2.25
2	0

3

$$y = ax^2$$

If a is negative: Up-side down

If $|a| < 1$: Wider

If $|a| > 1$: Narrow

Standard Form:
$$y = ax^2 + bx + c$$

Vertex:
$x = -b/2a$

Axis of symmetry:
$$x = -b/2a$$