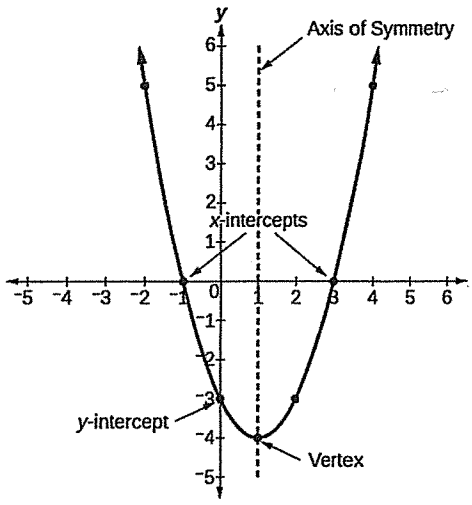
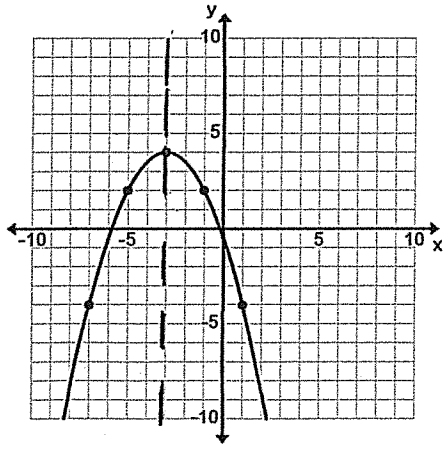
Algebra 1: Guided Notes **Name** Answer Key **Period** ____
Parts of a Quadratic Graph



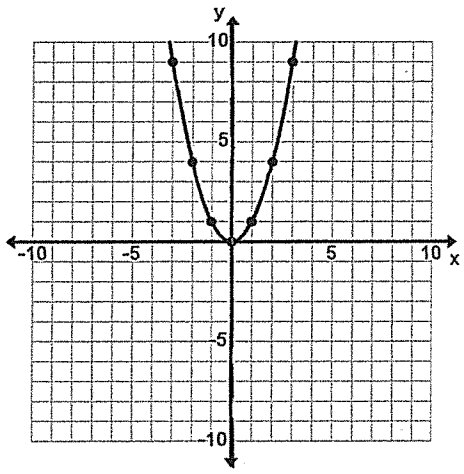
1. A function where the highest exponent is squared is called a quadratic function.
2. A line that passes through the graph in such a way that each side is a mirror reflection of the other side is called the axis of symmetry.
3. The points (or point) where the graph crosses the x-axis are called the x- intercepts or zeros.
4. The point where the graph crosses the y-axis is called the y- intercept.
5. The vertex is the highest or lowest point of your graph. It is also called the absolute maximum or minimum for a quadratic function.
6. When a parabola opens upward, the y-value of the vertex is the lowest value.
7. When a parabola opens downward the y-value of the vertex is the highest value.
8. The axis of symmetry for the graph in the upper right corner is $x = 1$ because it is a vertical line and crosses x-axis at (1, 0).

For each of the following, draw the axis of symmetry for the graph and fill in the information. Some values will be approximate!

9.



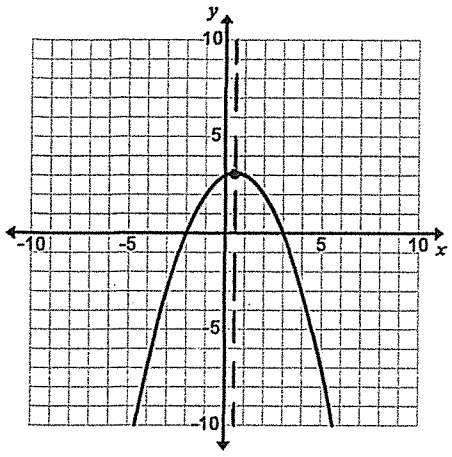
10.



Axis of symmetry: $x = -3$ Vertex: $(-3, 4)$
Is the vertex a max or min? max
x-intercepts (zeros): $(-6, 0)$, $(0, 0)$
y-intercepts: $(0, 0)$
Domain: All real numbers Range: $y \leq 4$

Axis of symmetry: $x = 0$ Vertex: $(0, 0)$
Is the vertex a max or min? min
x-intercepts (zeros): $(0, 0)$
y-intercepts: $(0, 0)$
Domain: All real numbers Range: $y \geq 0$

11.



Axis of symmetry: $x = \frac{1}{2}$ Vertex: $(\frac{1}{2}, 3)$

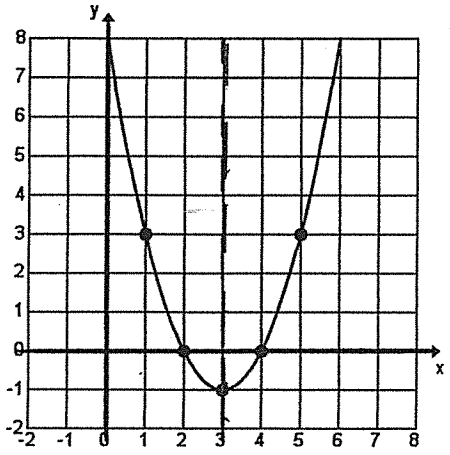
Is the vertex a max or min? max

x-intercepts (zeros): $(-2, 0)$, $(3, 0)$

y-intercepts: $(0, 3)$

Domain: All real numbers Range: $y \leq 3$

12.



Axis of symmetry: $x = 3$ Vertex: $(3, -1)$

Is the vertex a max or min? min

x-intercepts (zeros): $(2, 0)$, $(4, 0)$

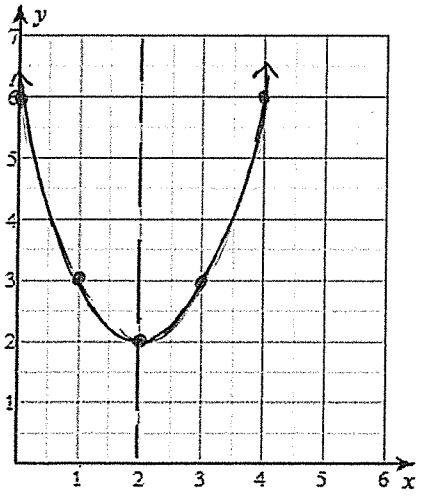
y-intercepts: $(0, 8)$

Domain: All real numbers Range: $y \geq -1$

For the following, complete the table of values. Then graph and fill in the information below.

13. $y = x^2 - 4x + 6$

x	y
0	6
1	3
2	2
3	3
4	6



Axis of symmetry: $x = 2$ Vertex: $(2, 2)$

Is the vertex a max or min? min

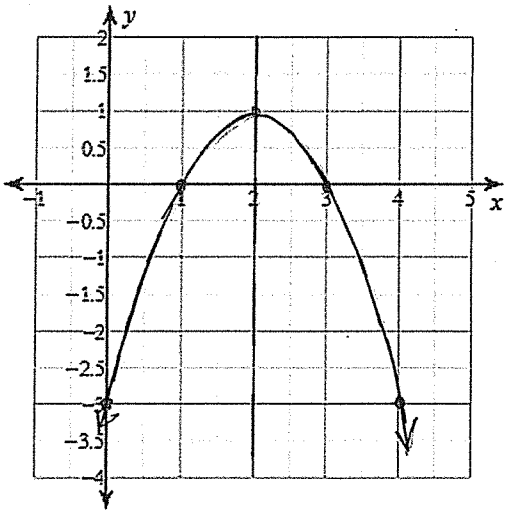
x-intercepts (zeros): none

y-intercepts: $(0, 6)$

Domain: All real numbers Range: $y \geq 2$

14. $y = -x^2 + 4x - 3$

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



Axis of symmetry: $x = 2$ Vertex: $(2, 1)$

Is the vertex a max or min? max

x-intercepts (zeros): $(1, 0)$, $(3, 0)$

y-intercepts: $(0, -3)$

Domain: All real numbers Range: $y \leq 1$