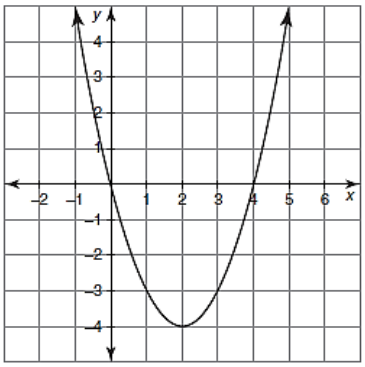
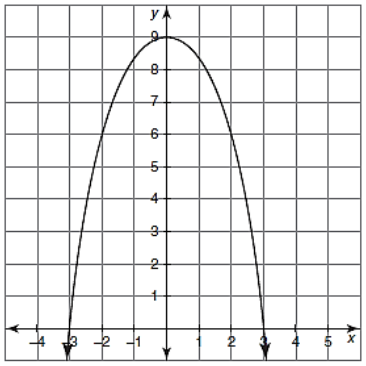
Algebra 1
8.3 Review – Applications of Quadratic Functions

Name:_____
Date: _____ Period: _____

What you need to know & be able to do	Things to remember	Examples	
1. Find the average rate of change given a graph	-Determine your two x-values and find their corresponding y-values on the parabola. -Calculate the rate of change (rise over run)	a. On interval from $0 \le x \le 2$: 	b. On interval from $-3 \le x \le 0$: 
2. Find the average rate of change given an equation	Find two points (by substituting x-values into the equation to get your y-values. Then use slope formula	a. Calculate the average rate of change for $y = x^2 + 1$ on the interval $0 \le x \le 2$.	
3. Applications of the Vertex	Maximum/Minimum indicate finding the vertex. Describe what you know about your equation before completing any solving. Interpret the vertex in terms of what x and y represent.	a. The height in feet of a rocket after x second is given by $y = -16x^2 + 128x$. What is the maximum height reached by the rocket and how long does it take to reach that height?	b. The arch of bridge is modeled by the equation $y = -\frac{1}{4}(x - 50)^2 + 95$, where x represent the horizontal distance (in feet) and y represents the vertical distance (in feet). What is the maximum height of the arch?
		c. A missile is launched along a path determined by the equation $f(x) = -2x^2 + 72x$, where $f(x)$ is the height of the missile in feet x seconds after the launch. A plane is flying nearby at a height of 650 feet. Is the plane in danger? Why or why not?	

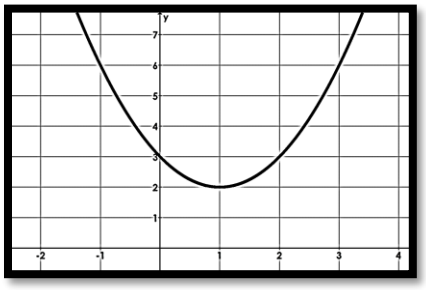
4. Comparing Quadratic Functions		a. Which representation has the greater y-intercept: A. $y = x^2 + 6x - 2$ B. C. $y = (x + 3)(x - 1)$	b. What representation has the smallest minimum value? A.

X	-1	0	1	2
y	1	-2	-3	-2

B.

X	-3	-2	-1	0	1
Y	-2	-5	-6	-5	-2

B.



C. $y = x^2 - 2x + 6$