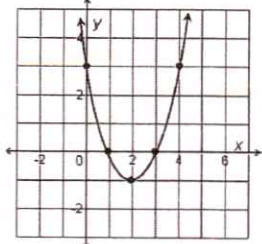
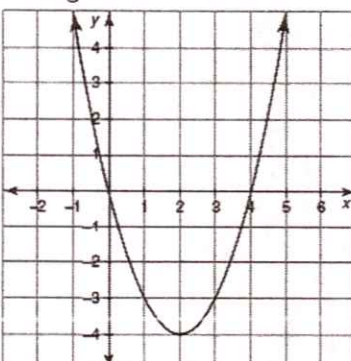
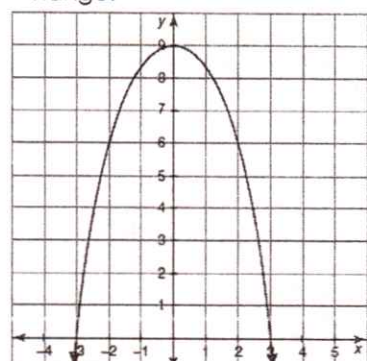
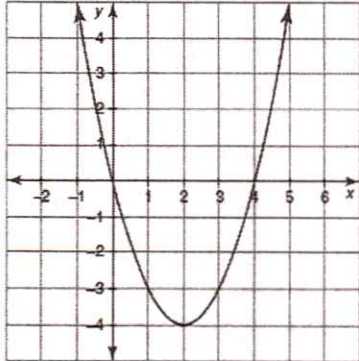
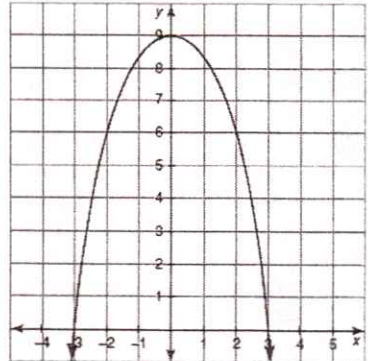
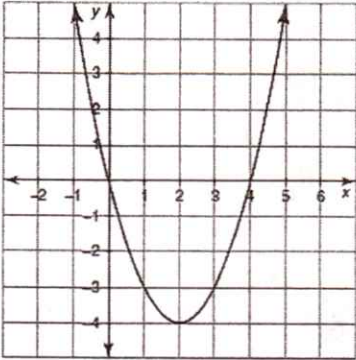
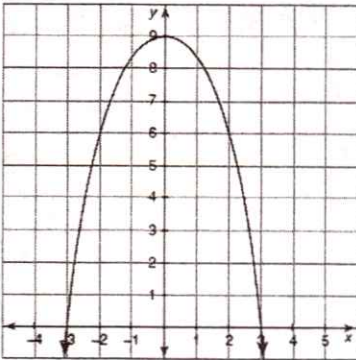
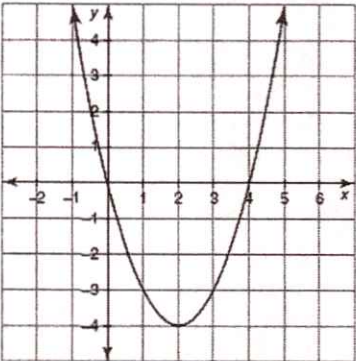
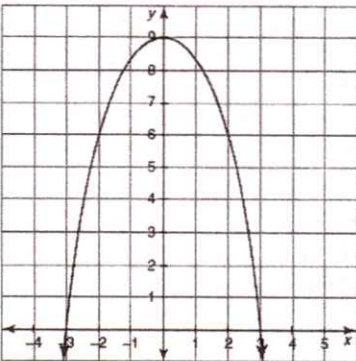
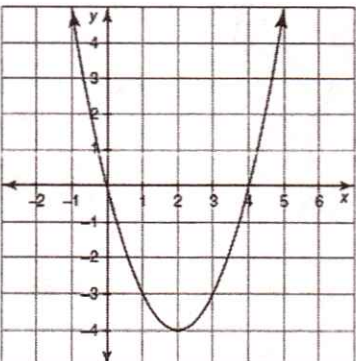
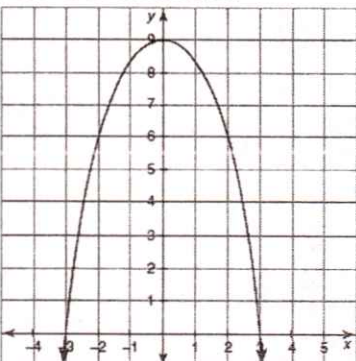
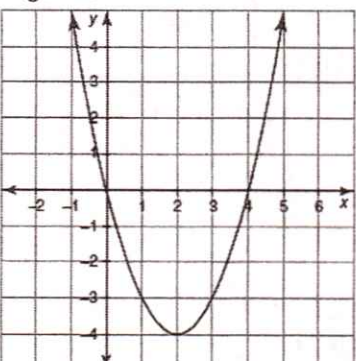
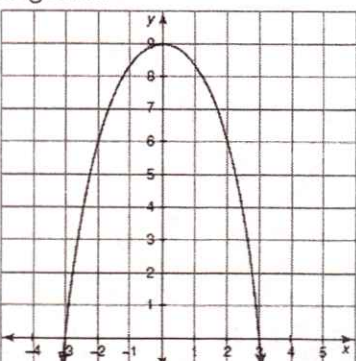
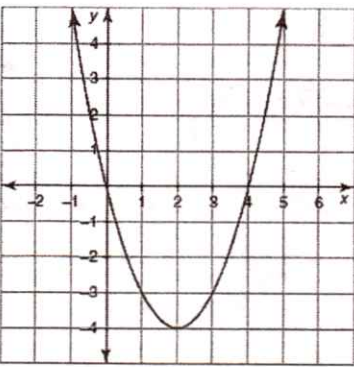
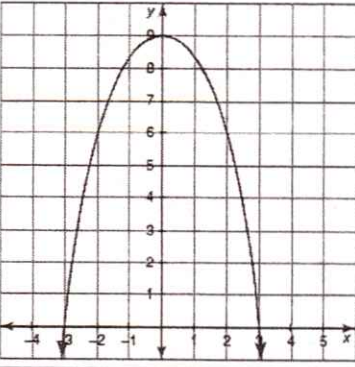
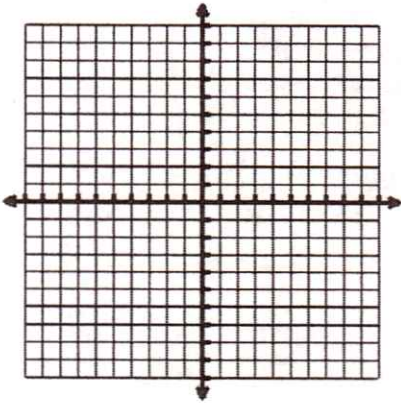
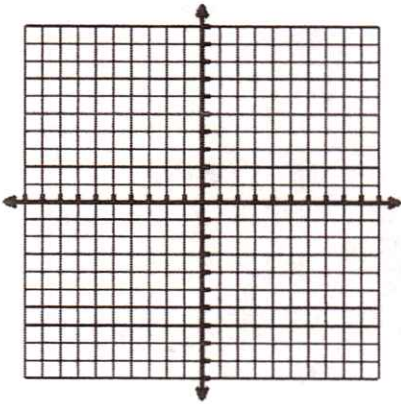
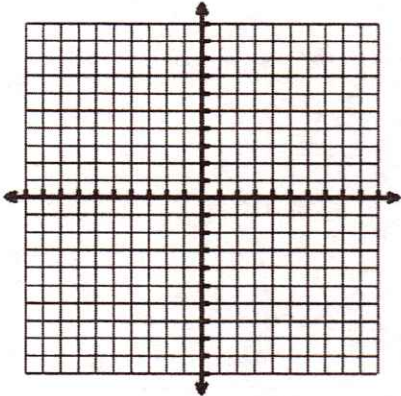
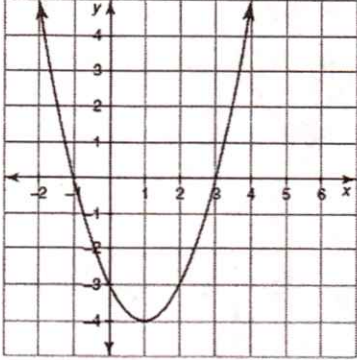
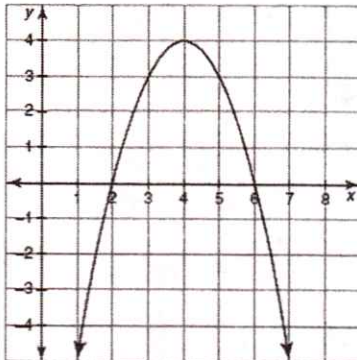


What you need to know & be able to do	Things to remember	Examples	
1. Describe transformations from an equation or graph	$y = a(x - h)^2 + k$ a: stretches/shrinks & reflects h: shifts left & right k: shifts up & down vertex: (h, k)	a. Describe the transformations and name the vertex: $y = -2(x + 3)^2 - 9$	a. Describe the transformations and name the vertex: 
2. Create a function using transformations	Determine your, a, h, and k values	a. Opens down, shifts up 3 units and shrinks by $\frac{1}{4}$	b. Shifts left 5 and reflects across the x-axis
3. Describe the domain and range.	-Domain: all possible values for x -Range: all possible values for y -"How far up or down does your graph go?" -written as an inequality	a. Domain: Range: 	b. Domain: Range: 
4. Describe the intercepts and zeros.	Zeros and x-intercepts are the same thing. Zeros: $x = \underline{\hspace{2cm}}$ X-int: (p, 0) (q, 0) Y-int: (0, c)	a. x-intercepts: _____ zeros: y-intercept: _____	b. x-intercepts: _____ zeros: y-intercept: _____
			

<p>5. Describe the vertex, axis of symmetry, extrema, and min/max values.</p>	<p>Vertex: highest or lowest point</p> <p>Axis of Symmetry: x value of the vertex; written as $x =$</p> <p>Extrema: Max or Min?</p> <p>Max/Min Value: What's the lowest or highest your graph goes; written as $y =$</p>	<p>a. Vertex: _____ Axis of Sym: _____</p> <p>Extrema: _____ Max/Min Value: _____</p> 	<p>b. Vertex: _____ Axis of Sym: _____</p> <p>Extrema: _____ Max/Min Value: _____</p> 
<p>6. Describe the end behavior.</p>	<p>Which direction are the ends of the graph headed? To positive or negative infinity?</p>	<p>a. As $x \rightarrow -\infty$, $f(x) \rightarrow$ ____.</p> <p>As $x \rightarrow \infty$, $f(x) \rightarrow$ ____.</p> 	<p>b. As $x \rightarrow -\infty$, $f(x) \rightarrow$ ____.</p> <p>As $x \rightarrow \infty$, $f(x) \rightarrow$ ____.</p> 
<p>7. Describe the intervals of increase or decrease.</p>	<p>Draw your axis of symmetry and create an inequality to represent to the left and right of the axis of symmetry.</p> <p>Then determine which direction the graph is going on the left and then on the right using your inequalities.</p>	<p>a. Interval of Increase: _____</p> <p>Interval of Decrease: _____</p> 	<p>b. Interval of Increase: _____</p> <p>Interval of Decrease: _____</p> 
<p>8. Describe the positive and negative parts of the graph</p>	<p>Determine which parts of the graph are above or below the x-axis.</p> <p>Use inequalities to describe the different regions using the x-intercepts.</p>	<p>a. Positive: _____</p> <p>Negative: _____</p> 	<p>b. Positive: _____</p> <p>Negative: _____</p> 

<p>9. Find the average rate of change given a graph</p>	<p>-Determine your two x-values and find their corresponding y-values on the parabola.</p> <p>-Calculate the rate of change (rise over run)</p>	<p>a. On interval from $0 \leq x \leq 2$:</p> 	<p>b. On interval from $-3 \leq x \leq 0$:</p> 
<p>10. Find the average rate of change given an equation</p>	<p>Find two points (by substituting x-values into the equation to get your y-values.</p> <p>Then use slope formula</p>	<p>a. Calculate the average rate of change for $y = x^2 + 1$ on the interval $0 \leq x \leq 2$.</p>	
<p>11. Graph in vertex form</p>	<ol style="list-style-type: none"> Determine your vertex. Create a table with 2 values to the left and right of the vertex. Graph. 	<p>a. Graph the following equation: $y = -3(x - 2)^2 + 5$</p> 	
<p>12. Graph in standard form</p>	<ol style="list-style-type: none"> Determine your vertex $\left(x = \frac{-b}{2a}\right)$. Create a table with 2 values to the left and right of the vertex. Graph. 	<p>a. Graph the following equation: $y = x^2 + 4x + 7$</p> 	

<p>13. Graph in factored form</p>	<p>1. Determine your x-intercepts and plot them.</p> <p>2. Determine you vertex (find the middle of the two x-intercepts or use $x = \frac{p+q}{2}$).</p> <p>3. Plot vertex and graph.</p>	<p>a. Graph the following equation: $y = -(x+1)(x-5)$</p> 	
<p>14. Different Forms of Quadratics</p>	<p>Vertex Form: $y = a(x-h)^2 + k$ (h, k) is vertex</p> <p>Standard Form: $y = ax^2 + bx + c$ $(0, c)$ is y-intercept</p> <p>Factored Form: $y = a(x-p)(x-q)$ $(p, 0)$ & $(q, 0)$ are x-intercepts</p> <p>A determines if graph opens up or down</p>	<p>a. Determine the form and associated characteristics: $y = 2(x+4)(x-3)$</p>	<p>b. Determine the form and associated characteristics: $y = (x-5)^2 + 9$</p>
<p>15. Converting between forms</p>	<p>Use your Converting Between Forms graphic organizer.</p>	<p>a. What characteristics can you describe in $y = (x+4)(x-7)$?</p> <p>Convert to standard form. What new characteristic can you give?</p>	<p>b. What characteristics can you describe in $y = (x+3)^2 - 5$</p> <p>Convert to standard form. What new characteristic can you give?</p>
		<p>c. What characteristics can you describe in $y = x^2 + 6x + 4$</p> <p>Convert to vertex form. What new characteristic can you give?</p>	<p>d. What characteristics can you describe in $y = x^2 - 5x - 24$</p> <p>Convert to factored form. What new characteristic can you give?</p>

16. Create equations given characteristics	Determine the best form to represent the given characteristics	a. Given: X-intercepts of (7, 0) and (-8, 0) and graph opens up	b. Given: Vertex of (-3, -6) and graph has a maximum
17. Create equations given graphs		<p>a.</p>  <p>Vertex Form:</p> <p>Intercept Form:</p> <p>Standard Form:</p>	<p>b.</p>  <p>Vertex Form:</p> <p>Intercept Form:</p> <p>Standard Form:</p>
18. Applications of the Vertex	<p>Maximum/Minimum indicate finding the vertex.</p> <p>Describe what you know about your equation before completing any solving.</p> <p>Interpret the vertex in terms of what x and y represent.</p>	<p>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?</p>	<p>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?</p>

c.

You run a canoe rental business on a small river in Georgia. You currently charge \$12 per hour canoe and average 36 rentals a day. An industry journal says that for every fifty cent increase in rental price, the average business can expect to lose two rentals a day.

a. Use this information to attempt to maximize your income. What should you charge?

Price	Number of Rentals	Revenue
\$12	36	

19. Comparing Quadratic Functions

a. Which representation has the greater y-intercept:

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

B.

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

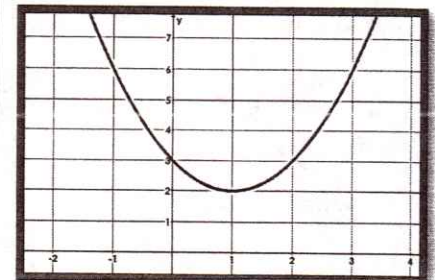
C. $y = (x + 3)(x - 1)$

b. What representation has the smallest minimum value?

A.

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

B.



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