Foundations of Mathematics 11 **Name: _____** **June 2016**
In Class Assignment –Quadratic Functions

PART A – Multiple Choice (10 Marks)
Circle the letter corresponding to the correct solution.

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1. What is the stretch factor of the quadratic function $y = -2(x-1)^2 + 4$?

[A] -1 [B] -2 [C] 2 [D] 4

2. If a quadratic function has a minimum y value of 2, then the function could be …

[A] $y = -3(x-5)^2 + 2$ [B] $y = 3(x+5)^2 + 2$ [C] $y = 3(x-2)^2 + 5$ [D] $y = -3(x+2)^2 + 5$

3. Write the following equation in Standard Form… $y = 4(x-3)^2 - 16$

[A] $y = 4x^2 - 24x + 20$ [B] $y = 4x^2 + 20$ [C] $y = 4x^2 - 12x + 20$ [D] $y = 4x^2 + 24x + 20$

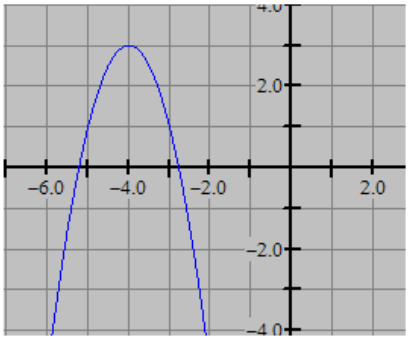
4. What is the *y*-intercept for the quadratic given by the equation… $y = -\frac{2}{3}(x-3)^2 + 5$?

[A] $(0,\ 2)$ [B] $(0,1)$ [C] $(0,\ -1)$ [D] $(0,\ -4)$

5. What is the vertex of the quadratic function $y = 2x^2 - 12x + 5$?

[A] $(3,5)$ [B] $(3,\ -13)$ [C] $(3,\ -4)$ [D] $(6,\ -67)$

6. Determine the axis of symmetry for the quadratic shown:



[A] $x = 2$ [B] $x = -4$

[C] $y = 3$ [D] $y \le 3$

7. Which of the following has its axis of symmetry given by the equation $x = -3$?

[A] $y = 2(x-3)^2 + 5$ [B] $y = 2(x+3)^2 + 5$ [C] $y = 2(x-5)^2 - 3$ [D] $y = 2(x-5)^2 - 3$

8. Given the graph of $y = a(x+1)^2 - 7$. If the value of a is replaced by $5a$, then the graph…

[A] shifts upward [B] shifts downward [C] becomes wider [D] becomes narrower

9. What is the range of the quadratic function… $y = -3(x-2)^2 - 5$

[A] $\{y \le 5\}$ [B] $\{y \le -5\}$ [C] $\{y \ge 5\}$ [D] $\{y \ge -5\}$

10. If the graph of $y = 5(x+1)^2 - 4$ is sketched, which of the following **is not** a possible value of ***y*** on the graph?

[A] 5 [B] 1 [C] –4 [D] –6

PART B – Open Response (30 Marks)
Show all your work in the space that is provided.

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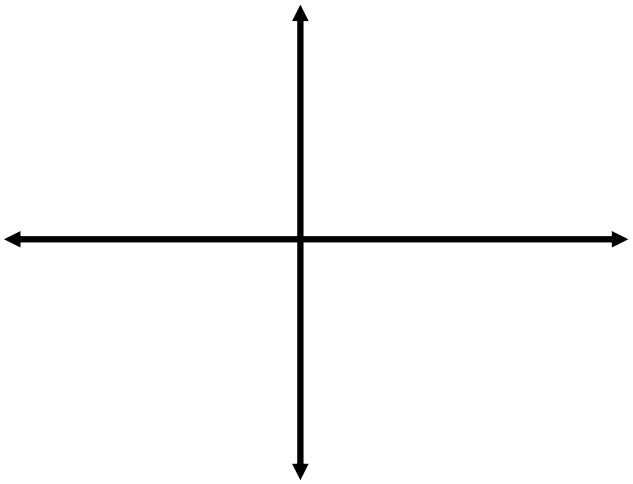
1. Complete the following for the equation… $y = 3x^2 - 24x + 36$

a) Vertex Form: [3]

b) *y*-intercept [1]

c) Vertex: _____ [1]

d) Sketch **(label 3 key points)**: [2]



e) Axis of symmetry: _____ [1]

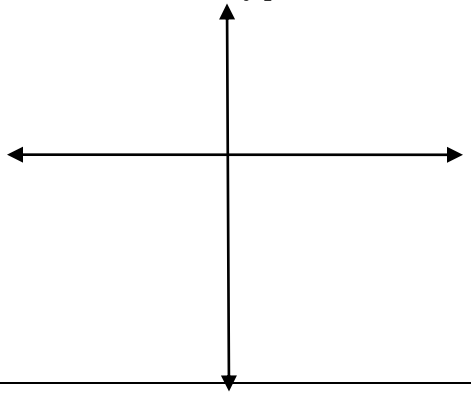
f) Range: _____ [1]

g) Circle: Maximum / Minimum *y*-value is _____ [2]

2. Change the following into **standard form** and state the given properties. [6]

$$y = \frac{2}{3}(x+6)^2 - 23$$

Vertex	
y-intercept	
Sketch: Must have <u>3 key points</u> labeled	



3. Complete the chart shown for the quadratic: $y = -5(x+3)^2 + 8$ [13]

Standard Form	
Direction of Opening	
Stretch Factor	
Vertex	
***y*-intercept**	
Domain	
Range	
Equation for Axis of Symmetry	
Maximum OR Minimum	
Minimum /Maximum Value	

Sketch: Must have <u>3 key points</u> labeled