

Name: _____

Hour: _____

Due

Date: 12-18-18

Quadratics Unit Test Review

- **Test Date: Thursday, December 20**
- There will be a calculator and non-calculator section
- There will be cumulative material from past units.

These concepts are not covered in this review.

Must be 100% complete at the start of class 12-18-18; I will gladly accept complete reviews on Monday, 12-17-18

Non-Calculator Section:

1. Graph the following quadratic equations in *standard form*. Be sure to identify all key features and fill in the table with the ordered pairs you are plotting on the graph. **There must be 5 points on your graph. Show all necessary work!**

a) $y = x^2 - 2x + 5$

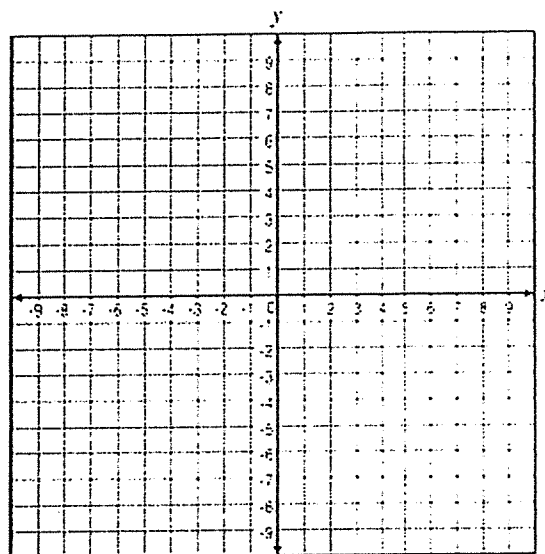
i) Axis of Symmetry:

ii) Vertex:

iii) Y-Intercept:

iv)

x					
y					



b) $y = -2x^2 - 8x - 5$

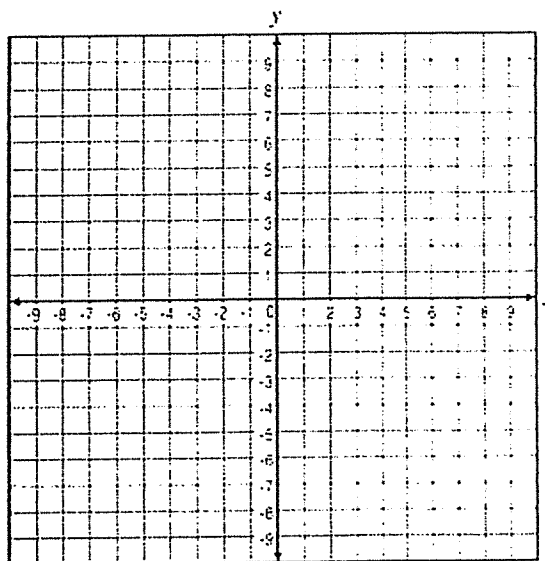
i) Axis of Symmetry:

ii) Vertex:

iii) Y-Intercept:

iv) Is the vertex a max of min?

x					
y					



2. Compute the sum, difference or product of the following complex numbers.

a) $(2 + 3i)(4 + 5)$	b) $(5 + 4i) - (-1 - 2i)$	c) $(1 + 2i)(-1 - 2i)$
d) $(-1 + 4i)(1 - 2i)$	e) $(6 + 2i) + (1 - 2i)$	f) $(3 + 2i)(3 + 2i)$
g) $(-2 + 3i) + (4 + 5i)$	h) $(5 + 4i)(1 + 2i)$	i) $(-1 - 5i)(-1 + 5i)$

3. Simplify the complex radicals.

a) $\sqrt{-36}$

c) $\sqrt{-100}$

e) $\sqrt{-81}$

f) $\sqrt{-49}$

b) $\sqrt{-20}$

d) $\sqrt{-28}$

f) $\sqrt{-300}$

g) $\sqrt{-42}$

Calculator Section:

1. Solve the following by either factoring, taking the square root or the quadratic formula. Make sure your answer is in simplest radical form.

a) $6x^2 + 5x = 4$

b) $x^2 - 6x - 3 = 0$

c) $4x^2 + 72 = 0$

d) $x^2 + 6x + 8 = 0$

e) $(x + 5)^2 + 100 = 0$

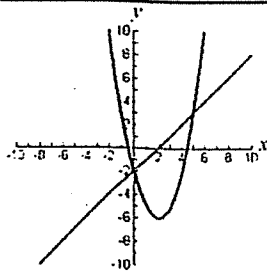
f) $3x^2 + 4x + 2 = 0$

g) $x^2 - 10x + 25 = 0$

h) $9x^2 - 6x - 11 = 0$

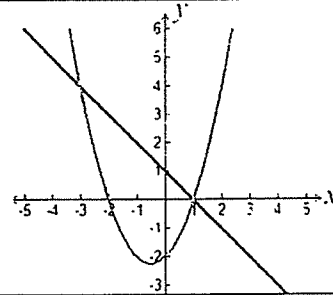
6) Solve the system of equations.

a)



Solution(s):

b)

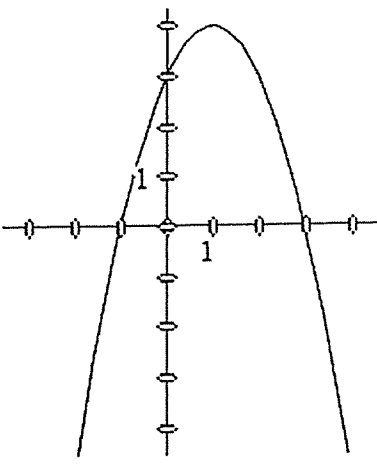


Solution(s):

c) $y = x^2 + 4x - 2$
 $y = 6x - 3$

d) $y = x^2 - 5x + 7$
 $y = 2x + 1$

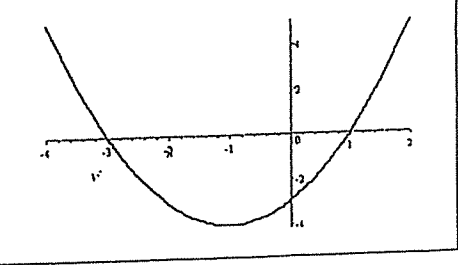
7) Use the following representations of three different quadratic functions to answer parts (a)-(d).

$f(x) = 2x^2 + 4x + 6$ Concavity: Axis of Symmetry: y-intercept: Min or Max?: Vertex: x-intercept(s):	The function $g(x)$ is defined by the following graph:  Concavity: Min or Max?: Axis of Symmetry: Vertex: y-intercept: x-intercept(s):
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- a) Do the functions have the same concavity? c) Which function has a lower y-intercept?

- b) Which function has a greater maximum? d) What solutions do the functions have in common?

8) Use the following representations of three different quadratic functions to answer parts (a)-(c).

$f(x) = 2x^2 - 8x + 6$		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>-7</td><td>5</td></tr> <tr><td>-6</td><td>0</td></tr> <tr><td>-5</td><td>-3</td></tr> <tr><td>-4</td><td>-4</td></tr> <tr><td>-3</td><td>-3</td></tr> <tr><td>-2</td><td>0</td></tr> <tr><td>-1</td><td>5</td></tr> <tr><td>0</td><td>12</td></tr> <tr><td>1</td><td>21</td></tr> </table>	-7	5	-6	0	-5	-3	-4	-4	-3	-3	-2	0	-1	5	0	12	1	21
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-2	0																			
-1	5																			
0	12																			
1	21																			

- a) Find the vertex of each representation.
- b) Is each vertex a max or a min?
- c) Which of the following has the least (smallest) min?

