Name_____

Date_____

Advanced Algebra

Unit 4: Quadratics

Review #4 for the Unit Test

Foundational (55%)

Solve the following for x.

1) $0=4(x+1)^2-16$ 2) $605=5x^2+20x+10$ 3) $-19(2x-5)(7x+9)=0$

Analyze each of the quadratic equations below and identify the key points:

4) $A(x) = 5(x-2)^2 - 3$

Root 1	Root 2	Vertex	Y- intercept

The domain of A(x) is: The range of A(x) is:

5) $B(x)= -3(x-4)(x-3)$

Root 1	Root 2	Vertex	Y- intercept

The domain of B(x) is: The range of B(x) is:

6) $C(x) = x^2-4x+6$

Root 1	Root 2	Vertex	Y- intercept

The domain of C(x) is: The range of C(x) is:

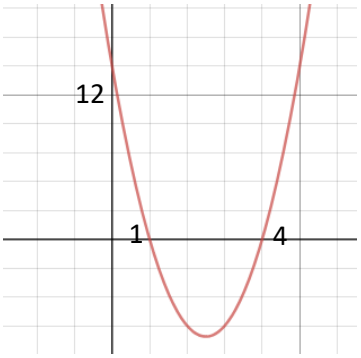
Sketch the graph of each of the parabolas above (4-6)

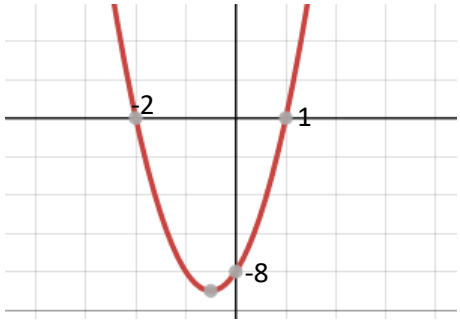
7) Solve for the roots of $x^2+10x + 41 = 0$

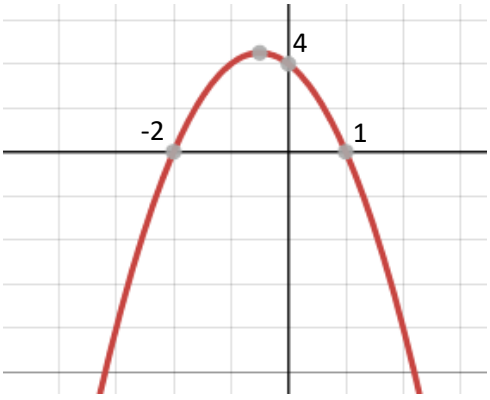
8) Rewrite $3x^2+12x-5$ in factored and in vertex form.

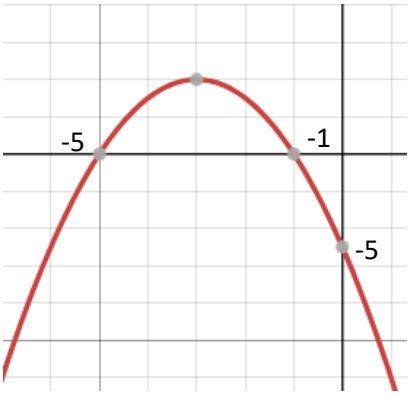
Vertex form final answer	Factored form final answer

For each of the following graphs, write the equation of the parabola in the form $y=ax^2+bx+c$









9) The curve $y=a(x+b)^2 + c$ has a minimum point at (3,6) and passes through the point (1,14).

a) Write the equation of this parabola

b) Write down the values of b and c

Final answer for b	Final answer for c

Moderate (36%)

10) An object is launced from the ground directly upward at 39.2m/s which produces the following equation: $h(t) = -4.9t^2 + 39.2t$ where h(t) is the height in meters after t seconds.

a) What is the height of the object after 1 second?

b) When will the object hit the ground?

c) What is the maximum height reached?

d) For how long is the object at or above a height of 34.3 meters?

11) Find the sum and the product of (4+3i) and (4-3i)

Sum	Product

12) Remembering that -b= sum of the roots and c= the product of the roots, write the equation of the parabola that produced the roots in problem #11

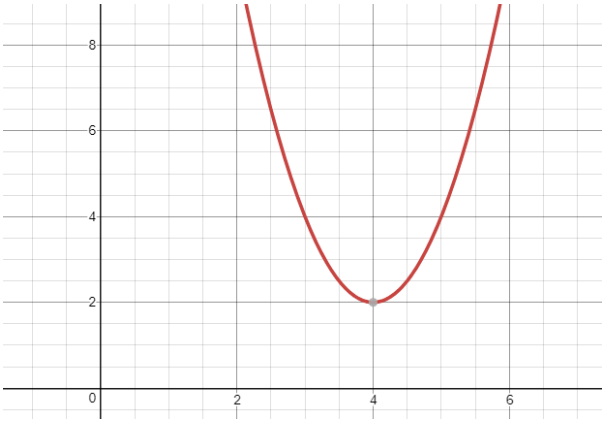
The football team is having a water balloon contest to raise money. A student releases a balloon from the 2 yard line. It reaches a max height of 5 yards and lands at the 8 yard line.

13) Draw a sketch of the water balloon scenario. Showing the path leaving the 2 yard line and landing on the 5 yard line

14) Write a quadratic equation that represents the balloon's vertical height(y) with repsect to its horinzontal distance (x). Don't forget to find the "a" value for your equation to be totally correct.

High Challenge (9%)

15) Write the equations that correspond to the graph shown.



Vertex form	
General Form	
Factored Form	

16) The roots of a quadratic are x=3+i and x=3-i. What is the equation of the quadratic in general form?