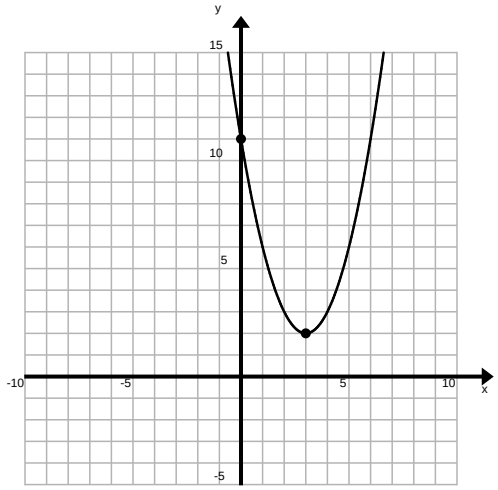
Quadratic Functions Quiz 2 **Name _____**

Multiple Choice & Numeric Response. 1 mark each.

1. Which set of data is correct for this graph?



	Axis of Symmetry	Vertex	Range
A.	x = 3	(3, 2)	$y \geq 2$
B.	x = 3	(3, 2)	$y \leq 2$
C.	x = 2	(2, 3)	$y \geq 3$
D.	x = 2	(2, 3)	$y \leq 3$

2. Which set of data is correct for the quadratic function: $y = -(x + 20)^2 + 14$?

	Direction parabola opens	Vertex	Axis of Symmetry
A.	upward	$(14, -20)$	$x = 14$
B.	downward	$(-20, 14)$	$x = -20$
C.	upward	(14,20)	$x = 14$
D.	downward	$(20, 14)$	$x = 20$

3. Which set of data is correct for the quadratic function: $f(x) = -3(x + 2)(x - 3)$?

	x-intercepts	y-intercept	Axis of Symmetry
A.	(2, 0), (3, 0)	(0, -18)	$x = 2.5$
B.	(-2, 0), (3, 0)	(0, -18)	$x = -2.5$
C.	(2, 0), (-3, 0)	(0, 18)	$x = -0.5$
D.	(-2, 0), (3, 0)	(0, 18)	$x = 0.5$

NUMERIC RESPONSE 1

The x-intercepts of a quadratic function are $(4,0)$ and $(9,0)$. The equation for the axis of symmetry is written: $x = h$. The value of h, rounded to the nearest tenth is _____ .

Record your answer to one decimal place on the answer sheet.

4. Given: $f(x) = x^2 + 7x + 10$. What are the x- and y-intercepts for this function?
   A. $(2,0)\ (5,0)\ and\ (0,-10)$
   B. $(2,0)\ (5,0)\ and\ (0,10)$
   C. $(-5,0)\ (-2,0)\ and\ (0,-10)$
   D. $(-5,0)\ (-2,0)\ and\ (0,10)$

5. Travis dives from a 6.0 m platform. He reaches a maximum height of 6.15 m after 0.20 s. How long does it take him to reach the water, if his height is given by the equation: $h(t) = -3.75(t - 0.20)^2 + 6.15$?
   A. 1.48 s
   B. 1.08 s
   C. 1.44 s
   D. 1.04 s

Written Response – Show all your work. You can use algebra or use a sketch to help justify as necessary.

1. Use quadratic function skills to solve:
   a) Does the quadratic function $y = (x - 7)(x + 3)$ have x-intercepts of (7,0) and (3,0)? Explain or justify why you agree or disagree.

   b) A quadratic function has x-intercepts of (-3,0) and (11,0). Explain or justify why the equation for the axis of symmetry is $x = 4$.

[8]

   a) The quadratic function $y = (x - 9)(x - 3)$ has an axis of symmetry $x = 6$. Determine the coordinates of the vertex for this function.

   b) The quadratic function $y = -2(x + 3)^2 + 4$ has a vertex of (3,4) and a range of $y \geq 4$. Explain or justify why you agree or disagree.

2. A ball is thrown into the air from a bridge that is 15 m above a river. The function that models the height, *h(t)* in metres, of the ball over time, t in seconds, is $h(t) = -4.9t^2 + 9.0t + 15$

   a) Record your window setting and sketch the path of the ball.
   Label the axes and write a title for the graph.

X: [

Y: [

[5]

   b) What TWO times is the ball 17 m above the water? [rounded to one decimal place]

   c) When does the ball hit the water? [rounded to one decimal place]

   d) How high does the ball go?