Math 20-2   **Name: _____**
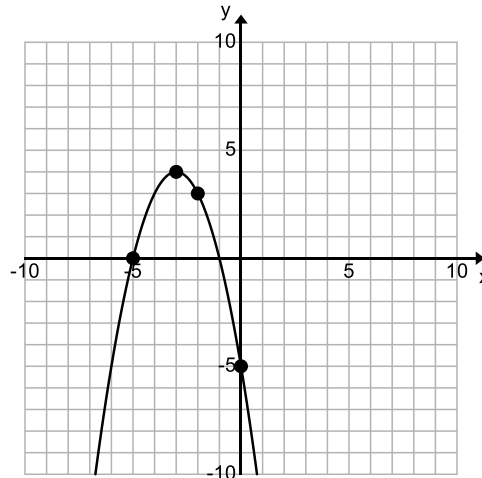**Quadratic Functions Review [Quiz 2019]**

1. Given the graph of the function:

   a) Write the coordinates of the vertex.

   b) Sketch in the axis of symmetry and write the equation for the axis of
      symmetry.

   c) Write the coordinates of the x – intercepts.

   d) Write the coordinates of the y – intercept.

   e) Write the domain and range.

[5]

2. Given the equation of the quadratic function: $y = x^2 - 6x + 5$

a) Find points to plot using an algebraic method and/or calculator skills. Sketch the graph.

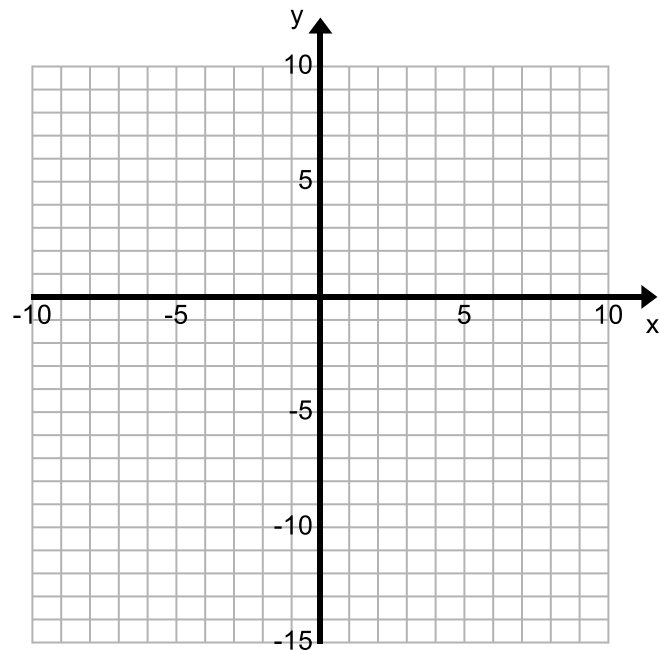| X	Y
-1	
0	
1	
2	
3	
4	
5	
6	

b) Write the coordinates of the x – intercepts.

c) Write the coordinates of the y – intercept.

d) Write the coordinates of the vertex.

e) Sketch in the axis of symmetry and write the equation for the axis of symmetry.
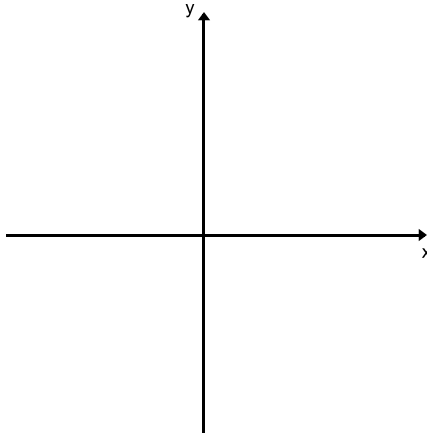
f) What is the range of the function?

[6]

3. Given the $y = x^2 - 2x - 9$

a) Sketch the function.

b) Determine the coordinates of the x – intercepts, rounded to nearest tenth if necessary.

[4]

c) Determine the coordinates of the vertex, rounded to the nearest tenth if necessary.

4. Use Quadratic Regression to determine the quadratic equation for the following data. Round to the nearest tenth if necessary:

X	Y
-3	1
-2	-3.5
0	-9.5
2	-11.5
5	-7

Identify the parameters:
$$y = ax^2 + bx + c$$
$a =$
$b =$
$c =$

[2]

Write the equation:

5. A concert sells all 5000 seats to stadium when the price of a ticket is $40. The concert manager needs to increase the revenue from the sale of tickets, so she commissions a survey to predict ticket sales for different ticket prices. The results are shown in the table below.

Ticket Price	$ 30.00	$ 35.00	$ 45.00	$ 50.00	$ 70.00
Expected Sales	5000	4500	3500	3000	1000

a) Find the revenue generated for each ticket price.

Ticket Price	$ 30.00	$ 35.00	$ 45.00	$ 50.00	$ 70.00
Revenue					

[4]

b) Determine a best-fit Revenue function using **quadratic regression** for the manager's data. Round off your values to the nearest hundredth as necessary.

$y = ax^2 + bx + c$

$a =$

$b =$

$c =$

Write the equation:

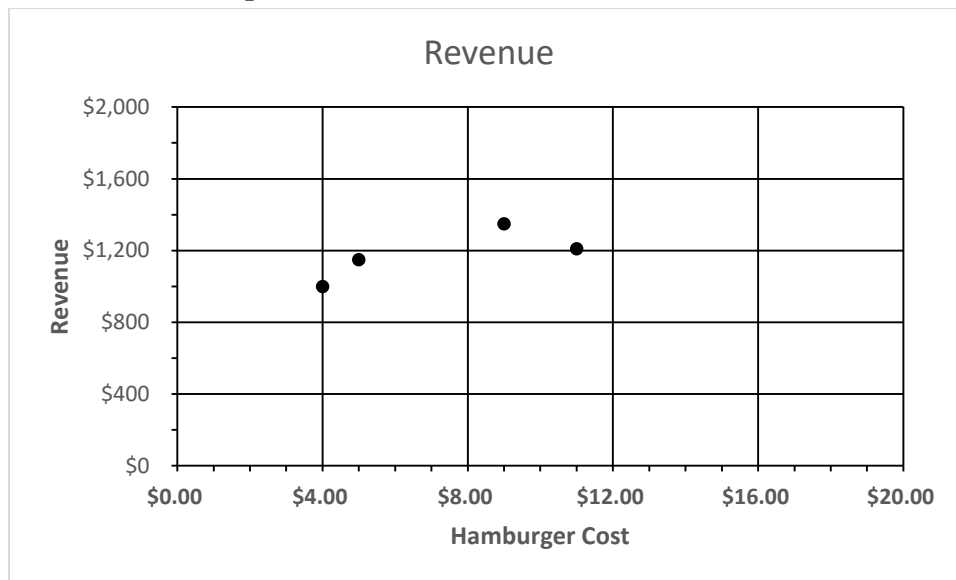6. The number of hamburgers sold at a concession stand is related to the price of the hamburgers as follows:

Price	$4.00	$5.00	$9.00	$11.00
Burgers Sold	250	230	150	110
Revenue	$1000	$1150	$1350	$1210

The Revenue Function for the sales data is: $R = -20P^2 + 330P + 0$, where R is revenue and P is the price/hamburger.

a) State a window for this information and sketch your function:

X: [____ , ____ , ____]

Y: [____ , ____ , ____]

Revenue

[3]

b) We know a $4.00 hamburger price will generate revenue of $1000. What other price will also generate revenue of $1000?

c) If you were the manager of the concession, what price would you set for the hamburgers to maximize the concession revenue?

7. The distance travelled and height of a golf ball is given by the equation: $y = -0.01x^2 + 0.75x$, where x is the distance the ball travels and y is the height of the ball, both in metres.

a) Determine a good y-window. Your graph should be similar to the sketch shown.

X: set your X max at 100

Y: [_____, _____, _____]
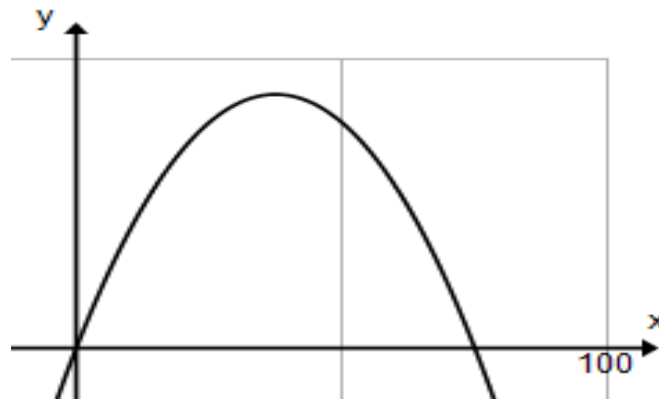
b) Find the maximum height of the ball.

[4]

c) What distance does the ball travel in the air?

d) Determine distance the ball travels when it first reaches a height of 10.0 metres.