MTH – 4108-1 Quadratic Functions Quiz #3

Name:

Date:

1. Determine whether the following statements are true or false. (8 marks)

a) If a quadratic equation has one zero, then the discriminant (Δ) of this equation is less than zero. _____

b) The discriminant (Δ) of a quadratic equation is greater than zero. The zeros of this equation could be 6 and -3. _____

c) The zeros of a quadratic equation whose discriminant (Δ) is -5 could be 4 and -2 _____

d) If a quadratic equation has no zero, its discriminant (Δ) is equal to zero. _____

e) The zero of a quadratic equation is 1. Its discriminant (Δ) could be less than 0. _____

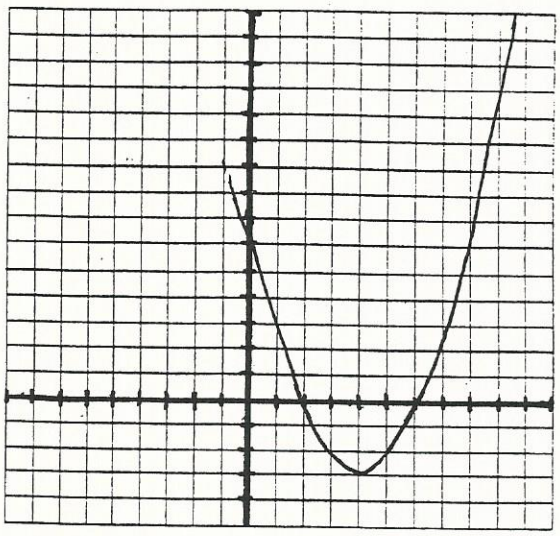
f) The discriminant (Δ) of a quadratic equation is -4. This equation has no zeros. _____

g) The zeros of a quadratic equation are 6 and 2. The discriminant (Δ) of this equation is zero. _____

h) If the discriminant (Δ) of a quadratic equation is greater than 0, then the equation has two distinct zeros. _____

2. By referring to the following graph, determine the characteristics listed below.

Scale
x-axis: 0.5 cm $\triangleq$ 1 unit
y-axis: 0.5 cm $\triangleq$ 1 unit



Coordinates of the vertex: _____

Zero(s): _____

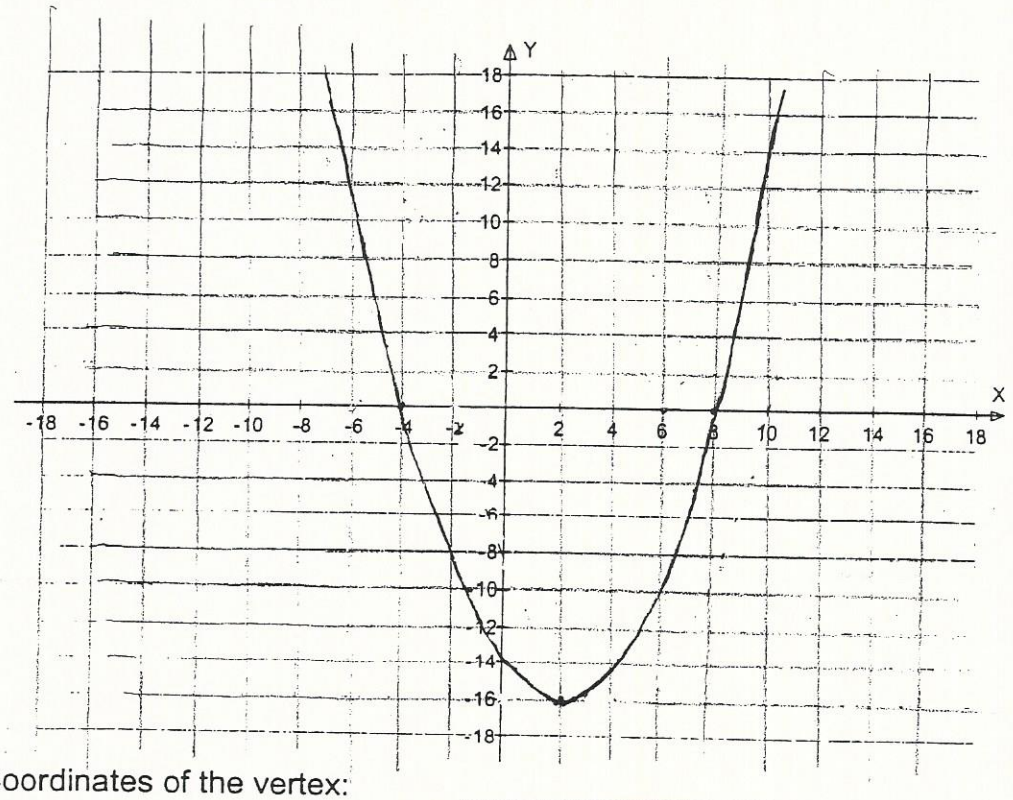
Equation of the axis of symmetry: _____

y-intercept: _____

Minimum: _____

5 marks

3. By referring to the following graph, determine the characteristics listed below.



Coordinates of the vertex: _____

y-intercept: _____

Zero(s): _____

Minimum: _____

Equation of the axis of symmetry: _____

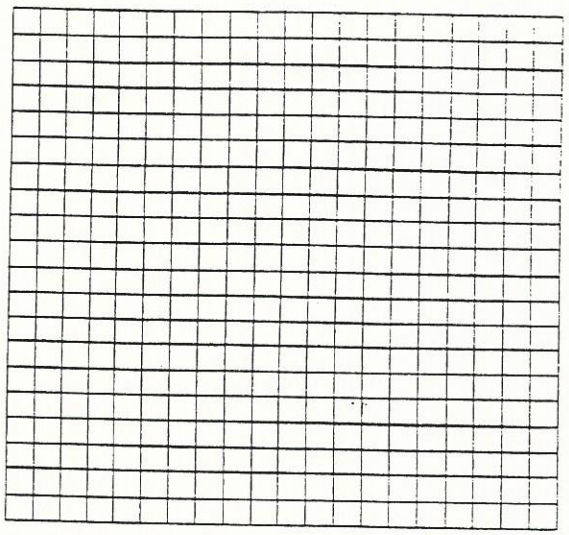
5 marks

4. Graph the equation below:

$y = -x^2 + 4x - 4$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y



Coordinates of the vertex: _____

Coordinates of the *y*-intercept: _____

Coordinates of the point symmetric with the *y*-intercept: _____

Coordinates of the zeros: _____

Equation of the axis of symmetry: _____

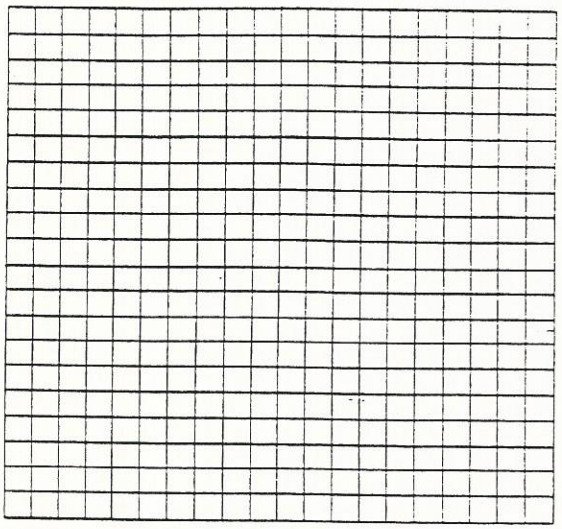
10 marks

5. Graph the equation below:

$y = 3x^2 - 6x$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y



Coordinates of the vertex: _____

Coordinates of the *y*-intercept: _____

Coordinates of the point symmetric with the *y*-intercept: _____

Coordinates of the zeros: _____

Equation of the axis of symmetry: _____

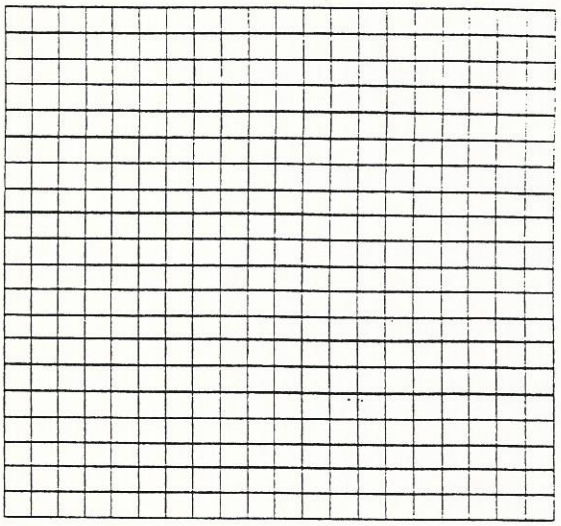
10 marks

6. Graph the equation below:

$$y = \frac{1}{2}x^2 + x + \frac{7}{2}$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y



Coordinates of the vertex: _____

Coordinates of the y-intercept: _____

Coordinates of the point symmetric with the y-intercept: _____

Coordinates of the zeros: _____

Equation of the axis of symmetry: _____

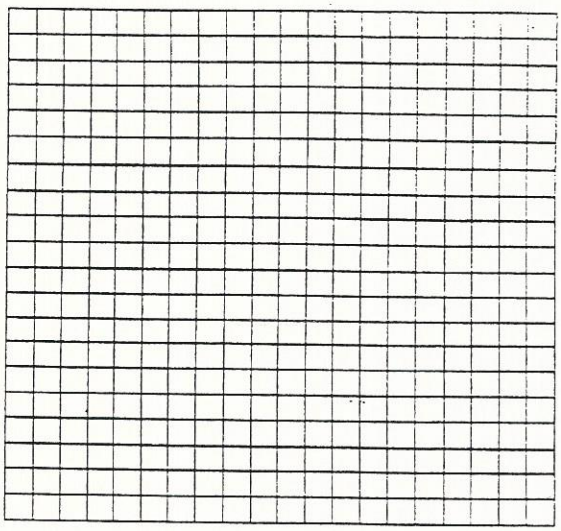
10 marks

7. Graph the equation below:

$$y = \frac{1}{2}x^2 - 2x + 4$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y



Coordinates of the vertex: _____

Coordinates of the *y*-intercept: _____

Coordinates of the point symmetric with the *y*-intercept: _____

Coordinates of the zeros: _____

Equation of the axis of symmetry: _____

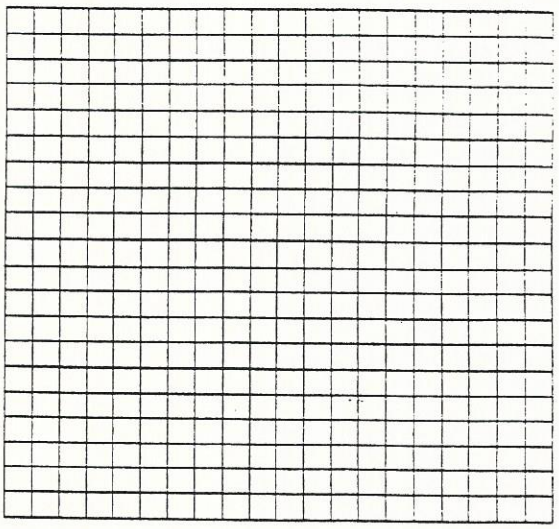
10 marks

8. Graph the equation below:

$y = -x^2 + 10x - 16$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y



Coordinates of the vertex: _____

Coordinates of the *y*-intercept: _____

Coordinates of the point symmetric with the *y*-intercept: _____

Coordinates of the zeros: _____

Equation of the axis of symmetry: _____

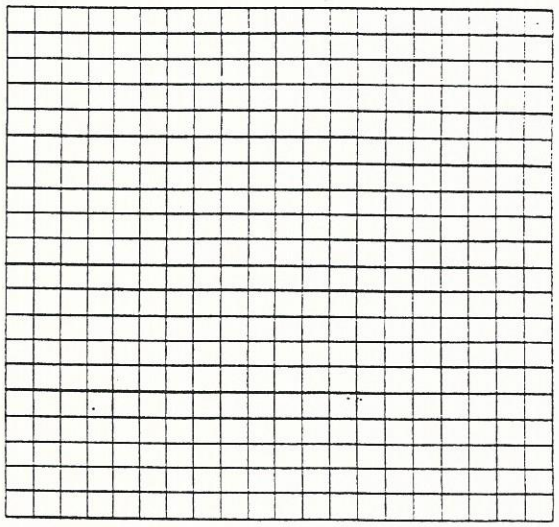
10 marks

9. Graph the equation below:

$$y = 2x^2 + 2x - \frac{9}{2}$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y



Coordinates of the vertex:_____

Coordinates of the y-intercept:_____

Coordinates of the point symmetric with the y-intercept:_____

Coordinates of the zeros:_____

Equation of the axis of symmetry:_____

10 marks