**Course Methods Year 11 Test 2**

Student name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Task type: Response**

**Time allowed for this task: 40 mins**

**Number of questions: 5**

**Materials required:** Formula Sheet and 1 page both sides of notes permitted.

No Calculators allowed.

Standard items: Pens (blue/black preferred), pencils (including coloured), sharpener, correction fluid/tape, eraser, ruler, highlighters

Special items: Drawing instruments.

**Marks available: 38 marks**

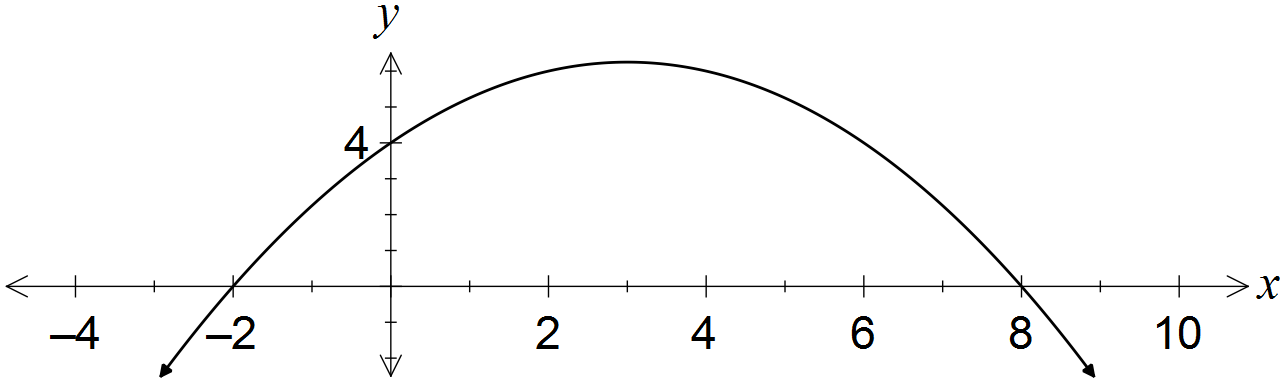
**Task weighting: 10 %**

**Formula sheet provided: Yes**

**Note: All part questions worth more than 2 marks require working to obtain full marks.**

1. (1.1.10-1.1.11) **(3, 2, 2, 4 = 11 marks)**

(a) Part of the graph of  is shown below.



Determine the values of the coefficients a and b. (3 marks)

(b) A quadratic has equation . Determine

(i) the coordinates of its turning point. (2 marks)

(ii) the exact values of the zeros of the quadratic. (2 marks)

(c) Show if it is possible to bend a 12 cm length of wire to form the perpendicular sides of a right angled triangle with area 20cm? (4 marks)

Question 2 (1.1.21, 1.1.22) (2, 1, 3, 3 = 9 marks)

(a) A circle of radius 5 has its centre at (6, -4).

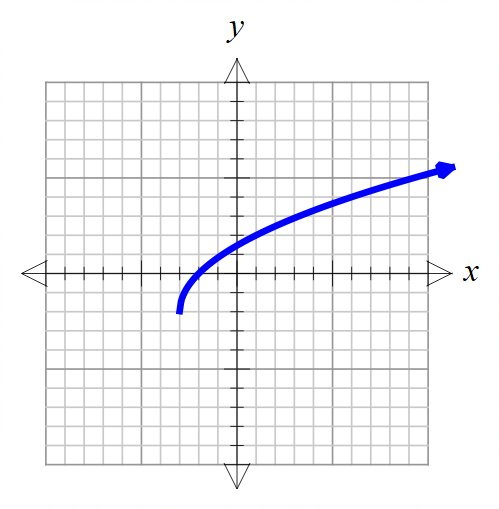
(i) Determine the equation of this circle. (2 marks)

(ii) State, with justification, whether the point (9, -8) lies on the circle. (1 mark)

(b) Determine the centre and radius of the circle with equation  .

(3 marks)

(c) Find the equation of the curve drawn below. (3 marks)



(-3,-2)

(6,4)

Question 3 (1.1.14) (2, 2, 2 = 6 marks)

A rectangular hyperbola has asymptotes with equation and .

1. Write two possible equations for this function
2. Write the equation of this function if it has a *y*-intercept at (0,5)
3. Write the equation of this function if it passes through the point (3,5)

Question 4 (1.1.24) (1, 2, 1, 2 = 6 marks)

1. Given
2. What type of correspondence does show? Circle one of the following.

Many-to-one One-to-many One-to-one

1. If the domain of is , find the range of
2. Given
3. What is the largest possible value of .
4. Determine the domain and range.



Question 5 (1.1.24) (1, 1, 2, 2 = 6 marks)

Suppose .

1. Evaluate
2. Find a value of x such that does not exist.
3. Find in simplest form.
4. Find *x* such that