PERTH MODERN SCHOOL
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Independent Public School

Course Methods   Year 11   Test 2

Student name: _____   Teacher name: _____

Date: Wednesday 4th May 2022

Task type: **Response**

Time allowed for this task: 40 mins

Number of questions: 8

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: **35 marks**

Task weighting: **10 %**

Formula sheet provided: Yes

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

Question 1   (1.1.8)   **(4 marks)**

A parabola that has its vertex at the point with coordinates (−1, 6) passes through the point (2, 10).

Find the equation of the parabola.

Question 2   (1.1.10)   **(4 marks)**

Find the **_exact y-coordinate_** of the points of intersection of the curve with equation

$y = x^2$ and the circle $x^2 + y^2 = 1$

Question 3   **(1.1.11)**   **(3, 2, = 5 marks)**

Consider the quadratic equation $(-2p + 1)x^2 + (p - 2)x + 6p = 0$.

(a)   Find the discriminant.

(b)   Re write the discriminant in perfect square form.

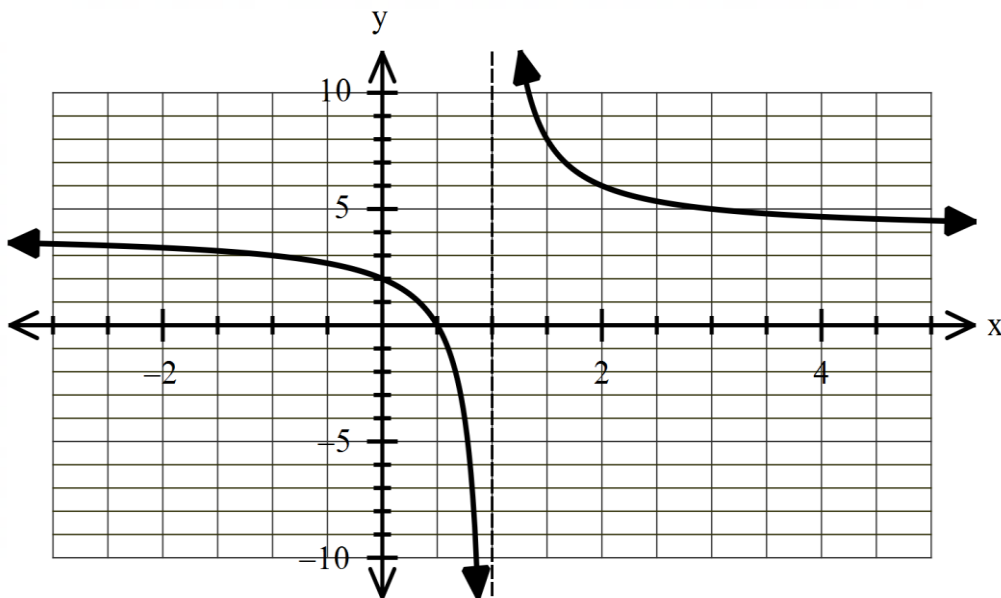**Question 4**   **(1.1.24)**   **(2, 2 = 4 marks)**

Given function f with rule $f(x) = \sqrt{3x - 11}$

(a)   State the domain of $f(x)$

(b)   Find $f(2a + 3)$

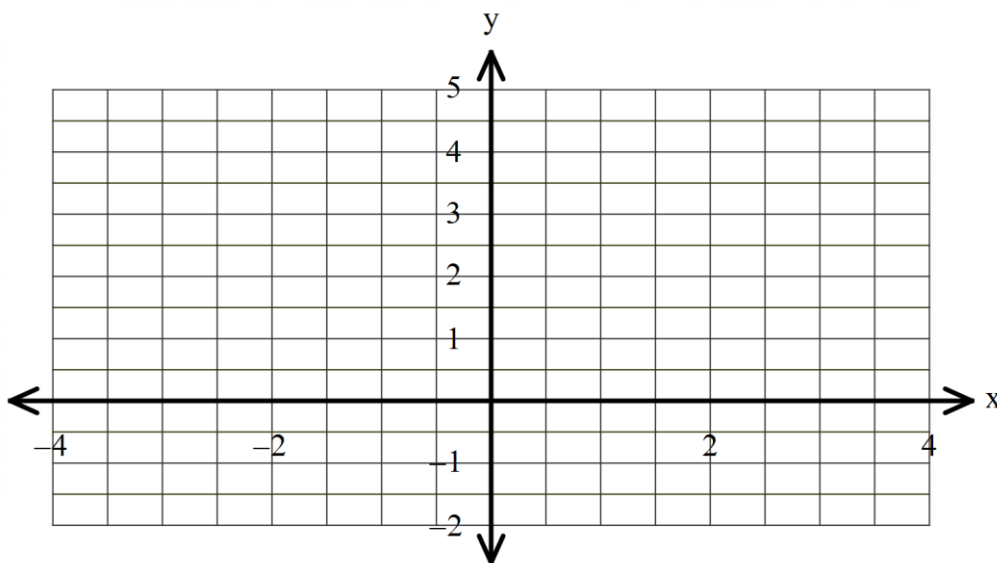**Question 5**   **(1.1.14)**   **(4 marks)**

Given that the graph below is in the form $y = \dfrac{a}{x-b} + c$

Determine the values of $a, b, and\ c$

Question 6   **(1.1.15)**   **(3 marks)**

Sketch $y = \sqrt{-x+1} + 2$ within the domain $-3 < x \leq 3$

Question 7   (1.1.21, 1.1.22)   **(2, 4 = 6 marks)**
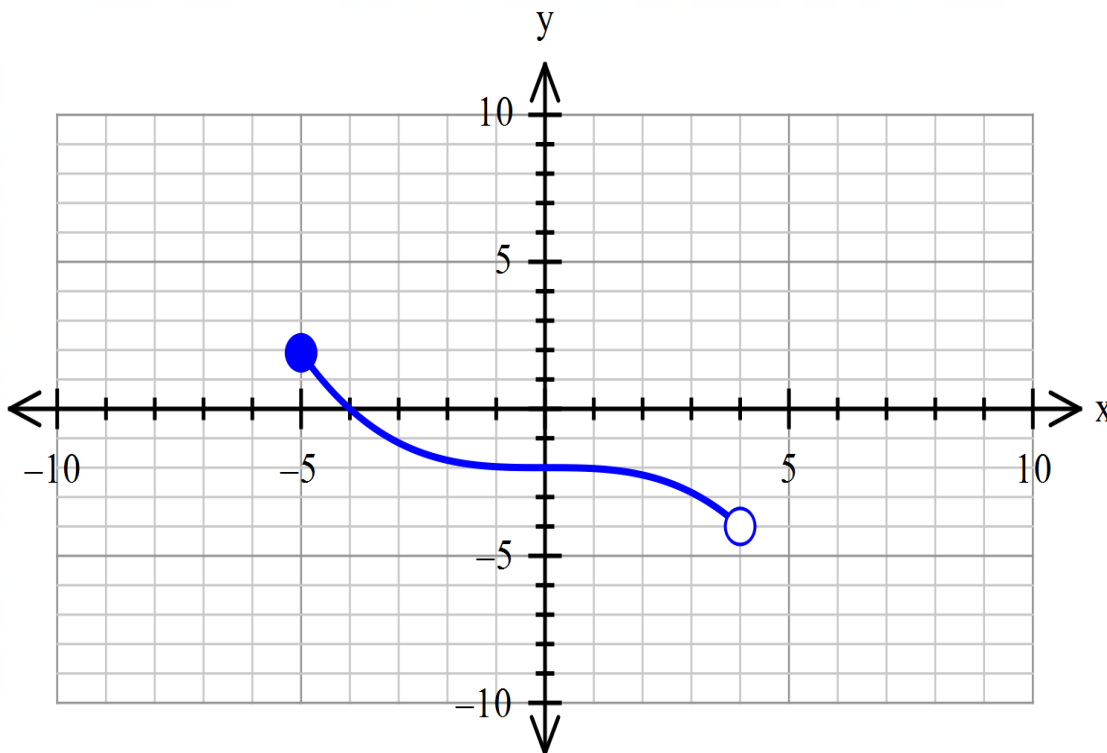
Consider the Polynomial $G(m) = m^3 - 3m^2 - 6m + 8$

(a)   Find $G(4)$

(b)   Hence or otherwise fully factorise $G(m)$

Question 8   (1.1.26, 1.1.27)   **(1, 2, 2 = 5 marks)**

The function $y = f(x)$ is shown below.

(a)   State the range of $f(x)$.   (1 mark)

(b)   Another function is given by $g(x) = 2f(x-3)$.

      Describe the transformation required to produce $g(x)$ from $f(x)$.   (2 marks)

(c)   On the same axes above, sketch the graph of $y = f(2x) + 2$.   (2 marks)