Name: _____

GCSE (1 – 9)

Cubic and Reciprocal Graphs

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
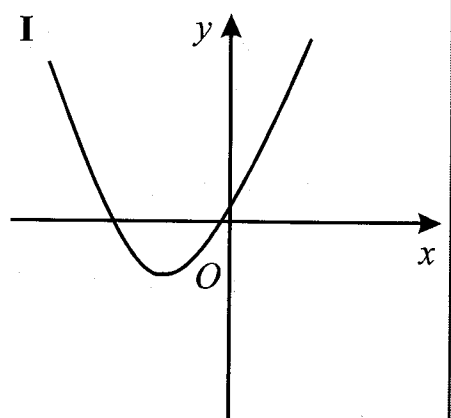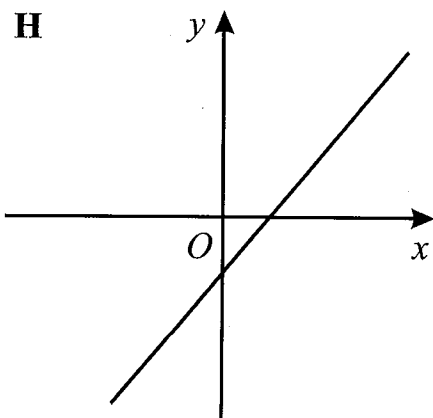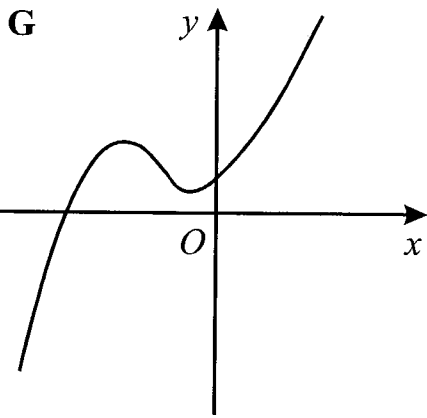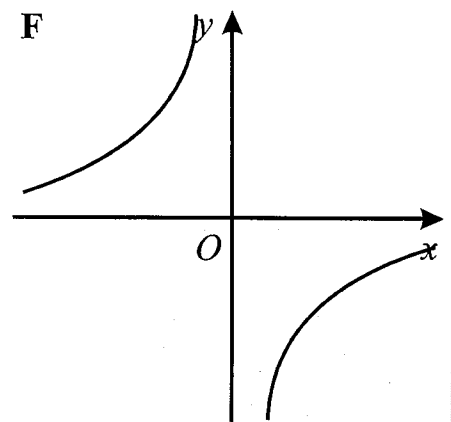- You must **show all your working out.**

Information

- The marks for each question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
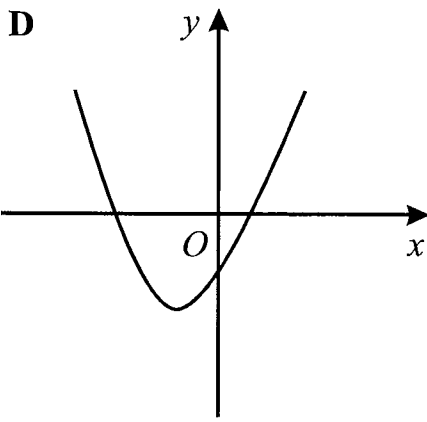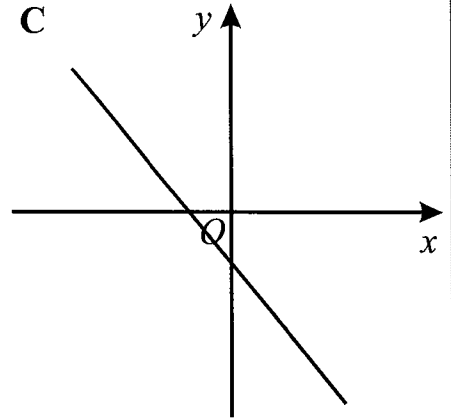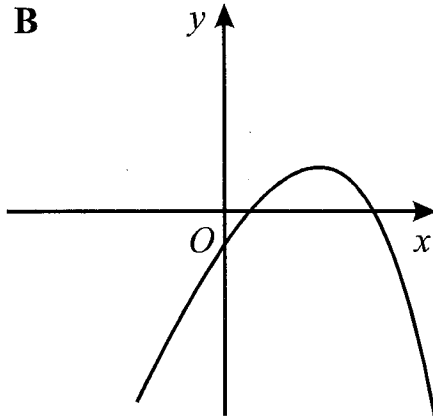- Try to answer every question.
- Check your answers if you have time at the end

1 Here are nine graphs.

A

B

C

D

E

F

G

H

I
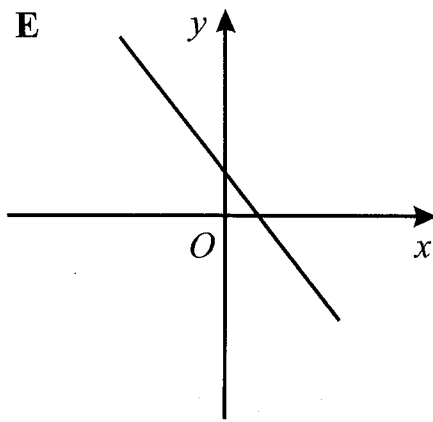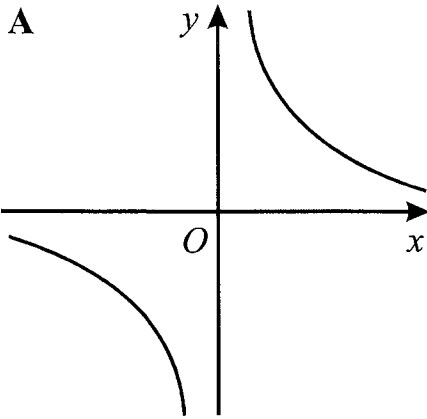
Write down the letter of the graph that could have the equation:

(i) $y = 3x - 2$

H

(1)

(ii) $y = 2x^2 - 5x - 3$

D

(1)

(iii) $y = \dfrac{3}{x}$

A

(1)

(Total for Question 1 is 3 marks)

2 (a) Complete the table of values for $y = \dfrac{1}{x}$

x	0.2	0.4	0.8	1	2	4
y	5	2.5	1.25	1	0.5	0.25

(2)

(b) On the grid, draw the graph of $y = \dfrac{1}{x}$

(2)
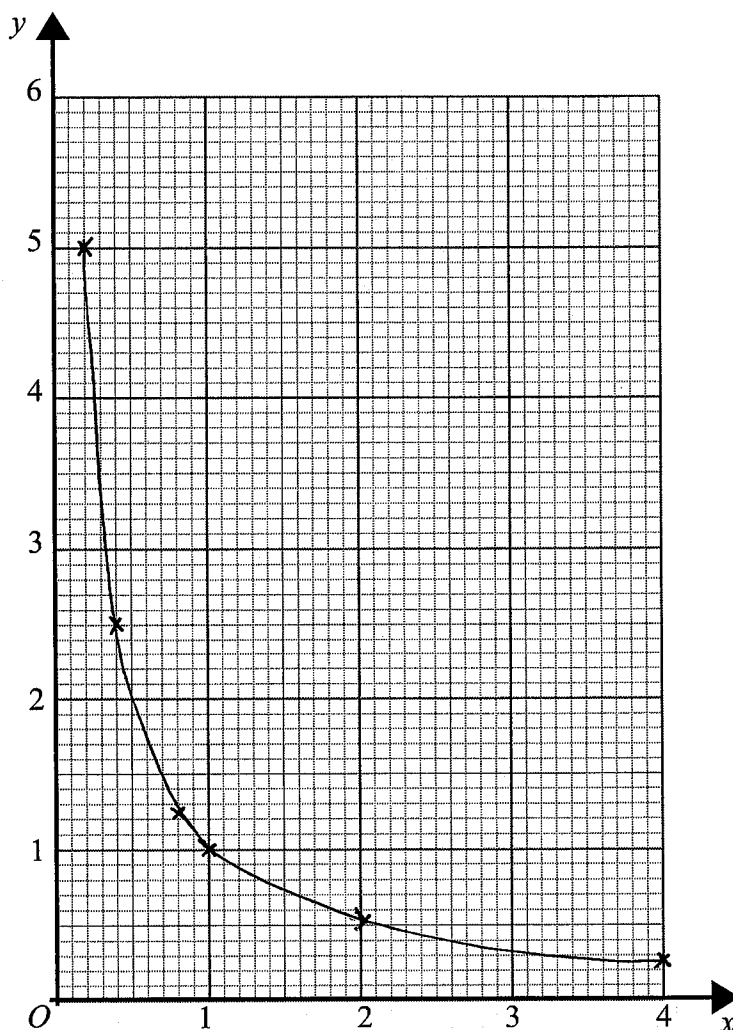
(Total for Question 2 is 4 marks)

3 (a) Complete the table of values for $y = x^3 + x - 2$

x	-2	-1	0	1	2
y	-12	-4	-2	0	8

(2)

(b) On the grid, draw the graph of $y = x^3 + x - 2$

(2)
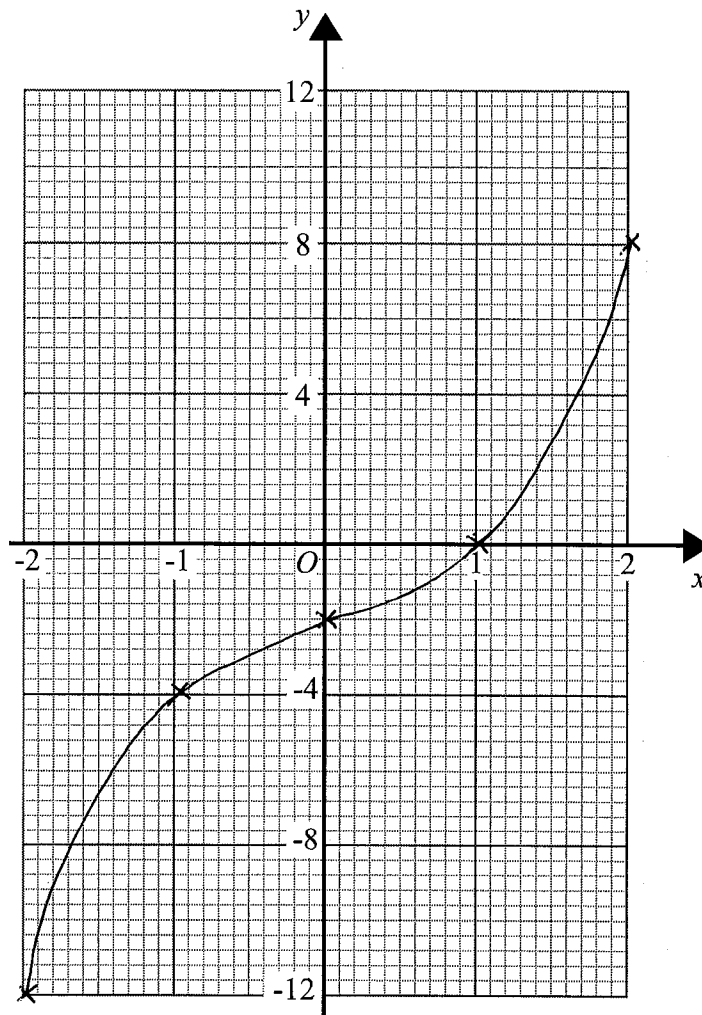
(Total for Question 3 is 4 marks)

4 (a) Complete the table of values for $y = x^3 + 3x$

x	-2	-1	0	1	2
y	-14	-4	0	4	14

(2)

(b) On the grid, draw the graph of $y = x^3 + 3x$

(2)
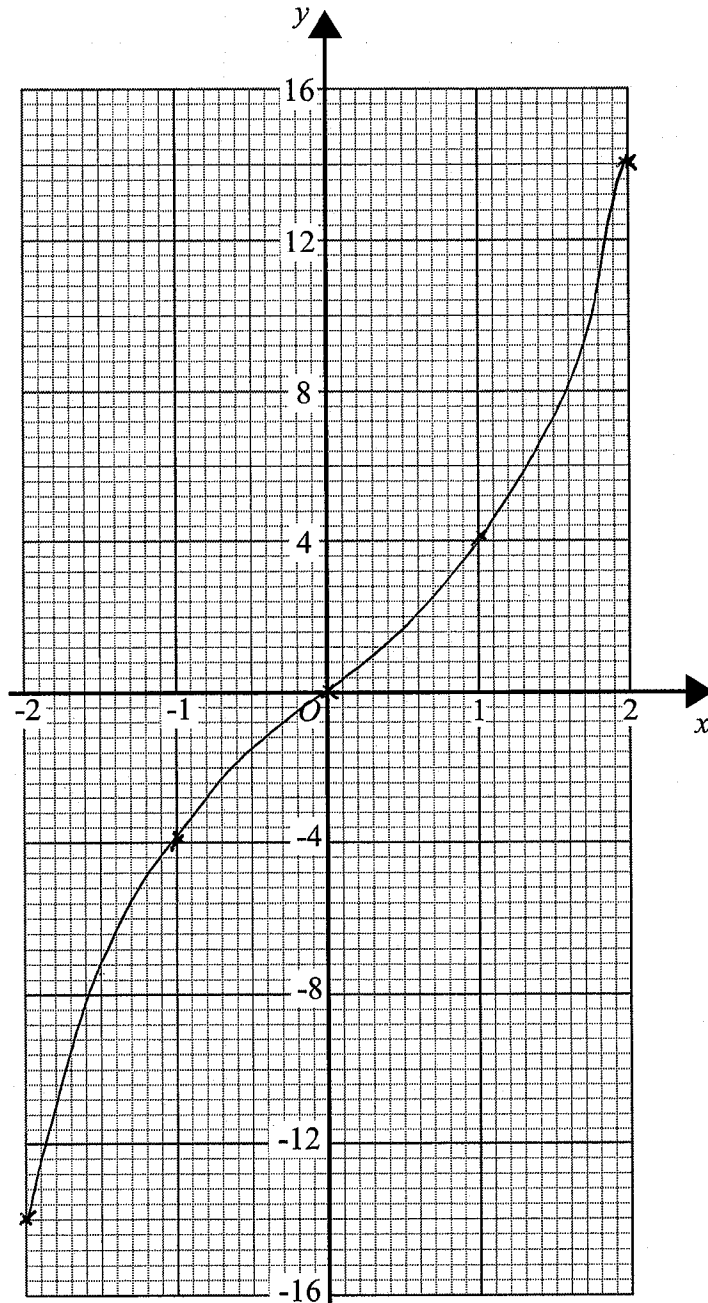
(Total for Question 4 is 4 marks)

5 (a) Complete the table of values for $y = x^3 - 3x + 2$

x	-3	-2	-1	0	1	2	3
y	−16	0	4	2	0	4	20

(2)

(b) On the grid, draw the graph of $y = x^3 - 3x + 2$

(2)
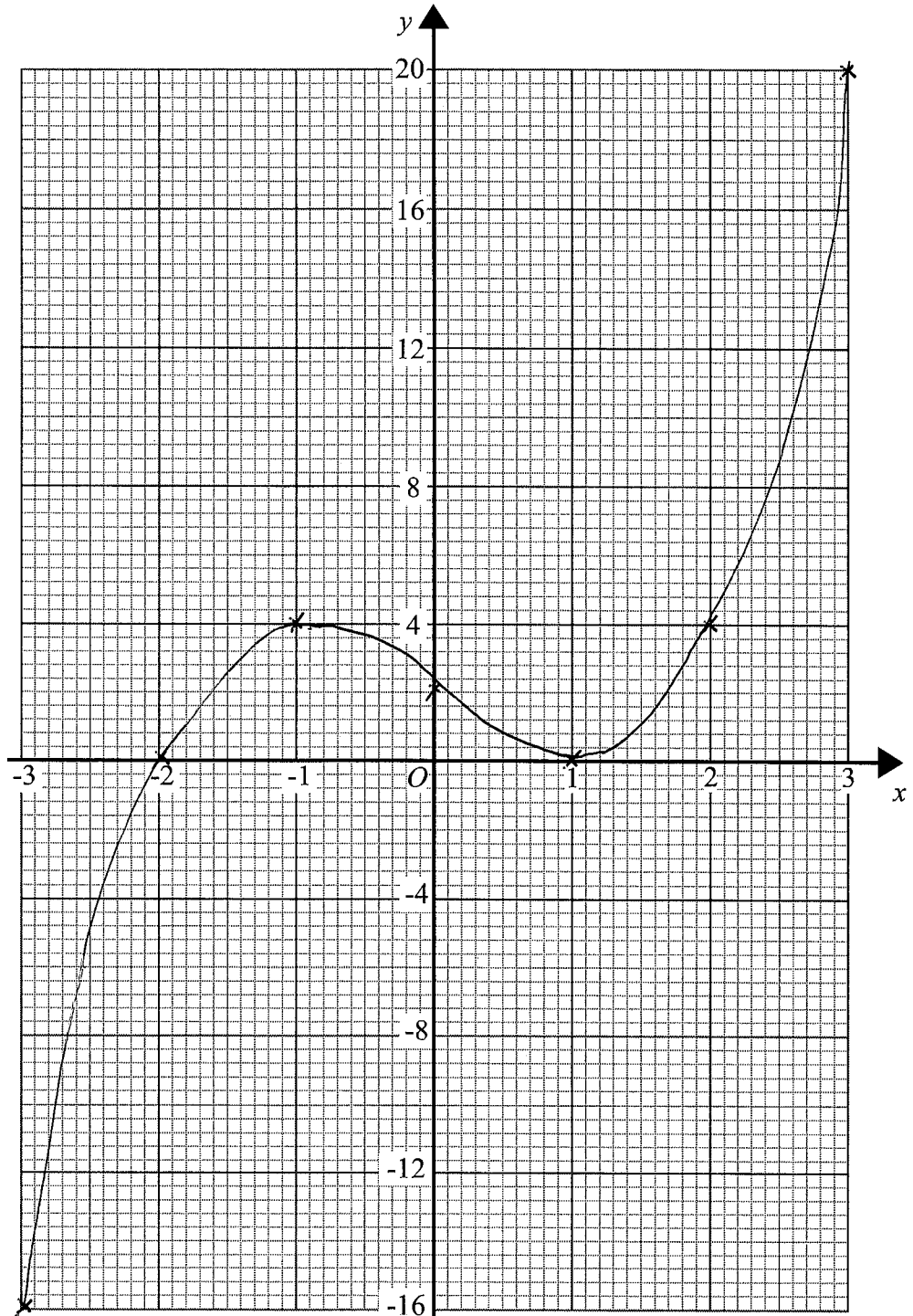
(Total for Question 5 is 4 marks)

6 (a) Complete the table of values for $y = \dfrac{6}{x}$

x	0.5	1	1.5	2	3	4	5	6
y	12	6	4	3	2	1.5	1.2	1

(2)

(b) On the grid, draw the graph of $y = \dfrac{6}{x}$

(2)
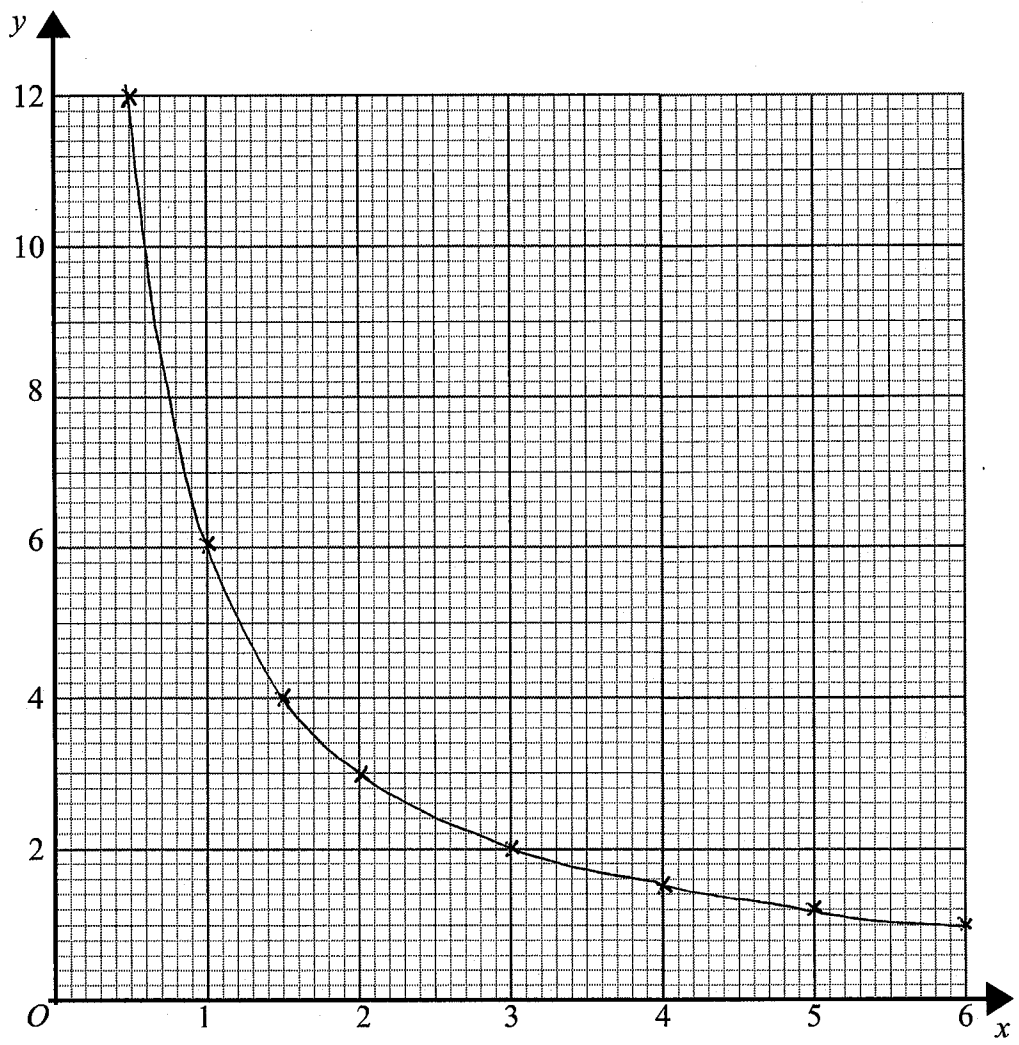
(Total for Question 6 is 4 marks)

7 (a) Complete the table of values for $y = x + \dfrac{1}{x}$

x	0.2	0.4	0.6	0.8	1	2	4	5
y	5.2	2.9	2.27	2.05	2	2.5	4.25	5.2

(2dp)

(2)

(b) On the grid, draw the graph of $y = x + \dfrac{1}{x}$

(2)
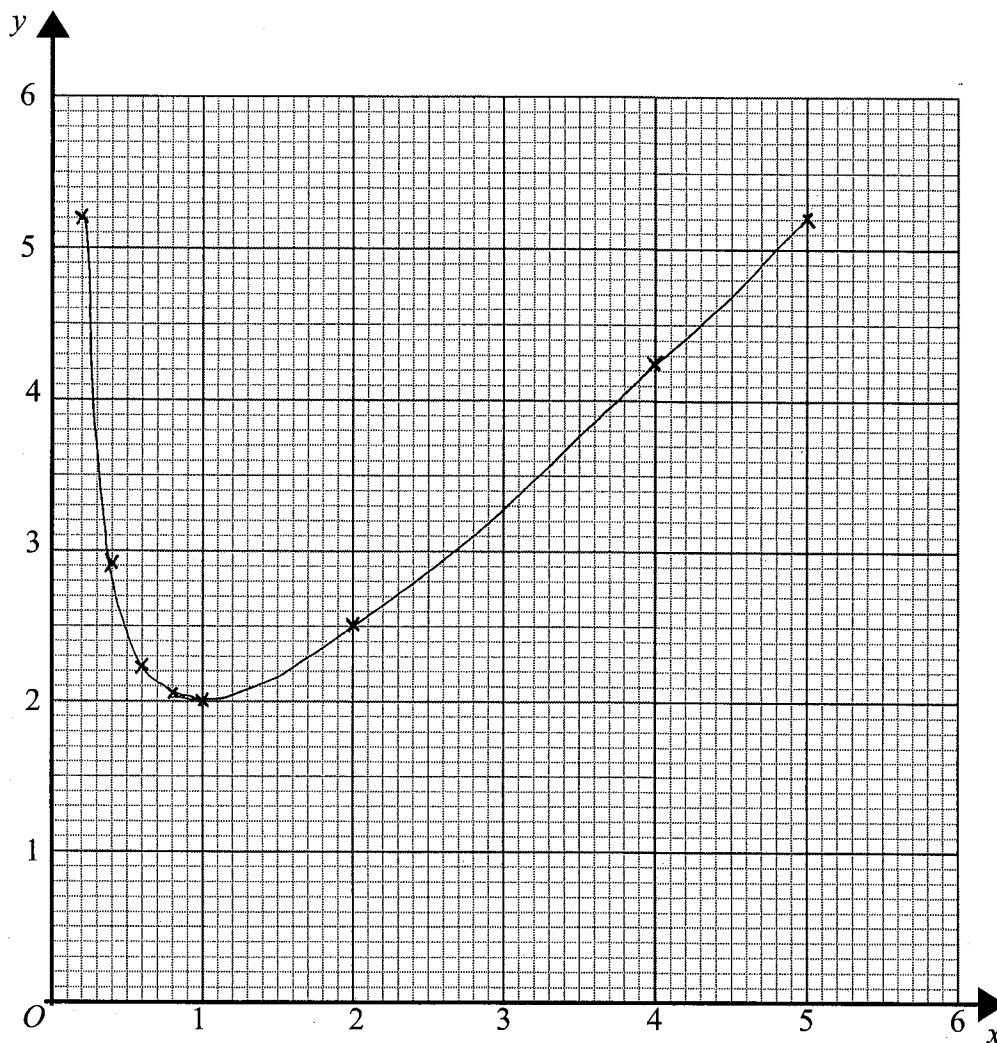
(Total for Question 7 is 4 marks)