

Name: _____

GCSE (1 – 9)

Quadratic 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.**

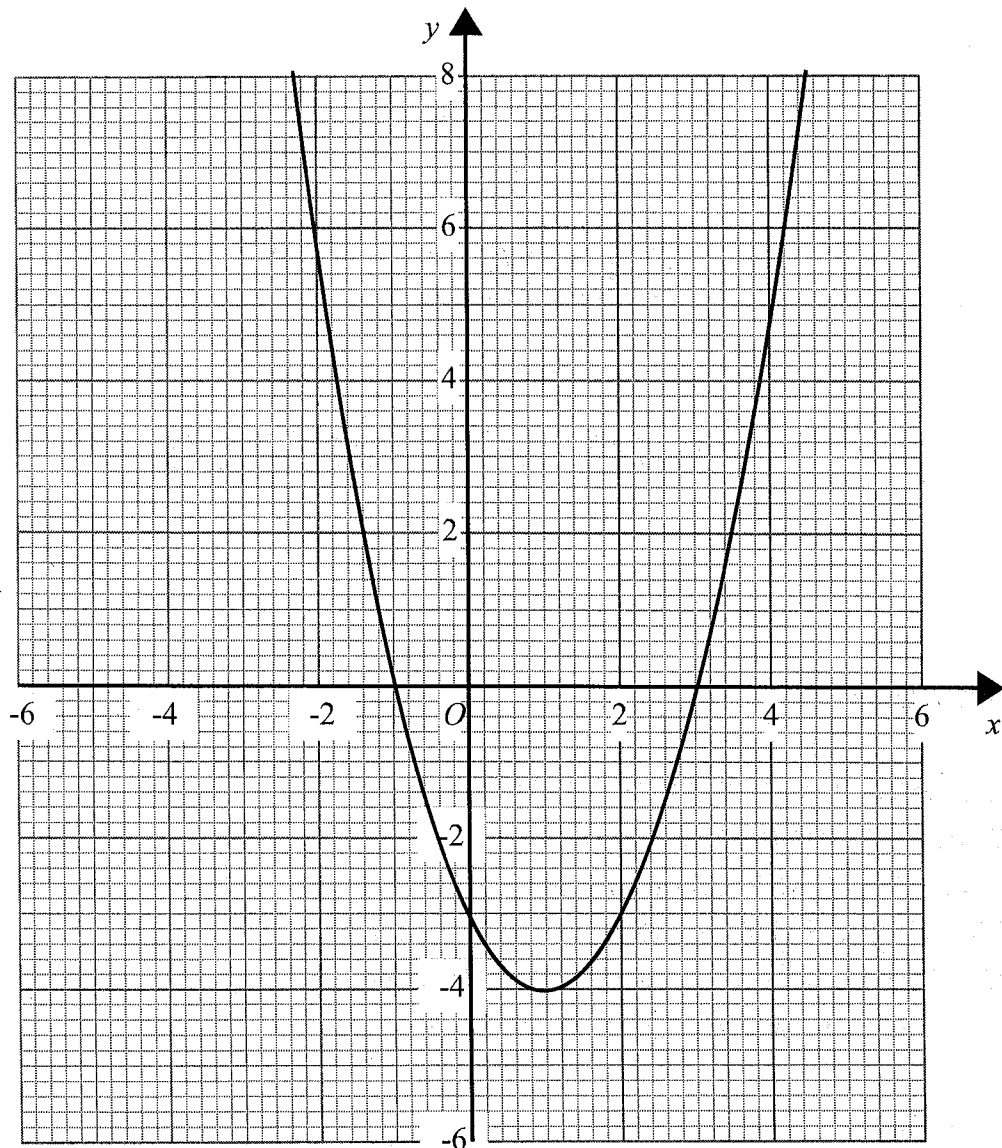
Information

- 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 is the graph of $y = x^2 - 2x - 3$



(a) Write down the turning point of the graph $y = x^2 - 2x - 3$

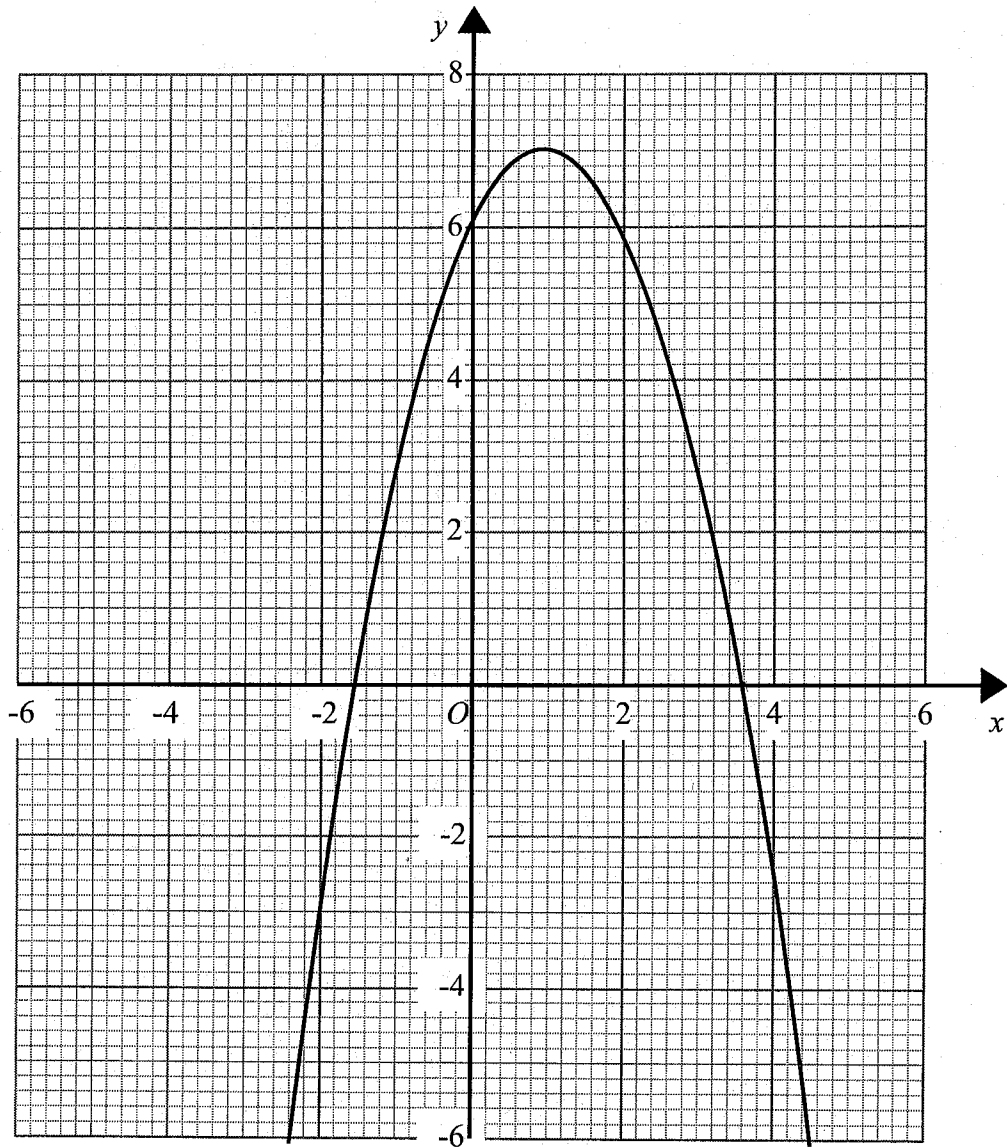
(..... 1, -4)
(1)

(b) Use the graph to find the roots of the equation $x^2 - 2x - 3 = 0$

-1 and 3
.....
(2)

(Total for question 1 is 3 marks)

2

Here is the graph of $y = 2x + 6 - x^2$ (a) Write down the turning point of the graph $y = 2x + 6 - x^2$

(..... $\frac{1}{1}$, $\frac{7}{1}$ )

(b) Use the graph to find the roots of the equation $x^2 = 2x + 6$

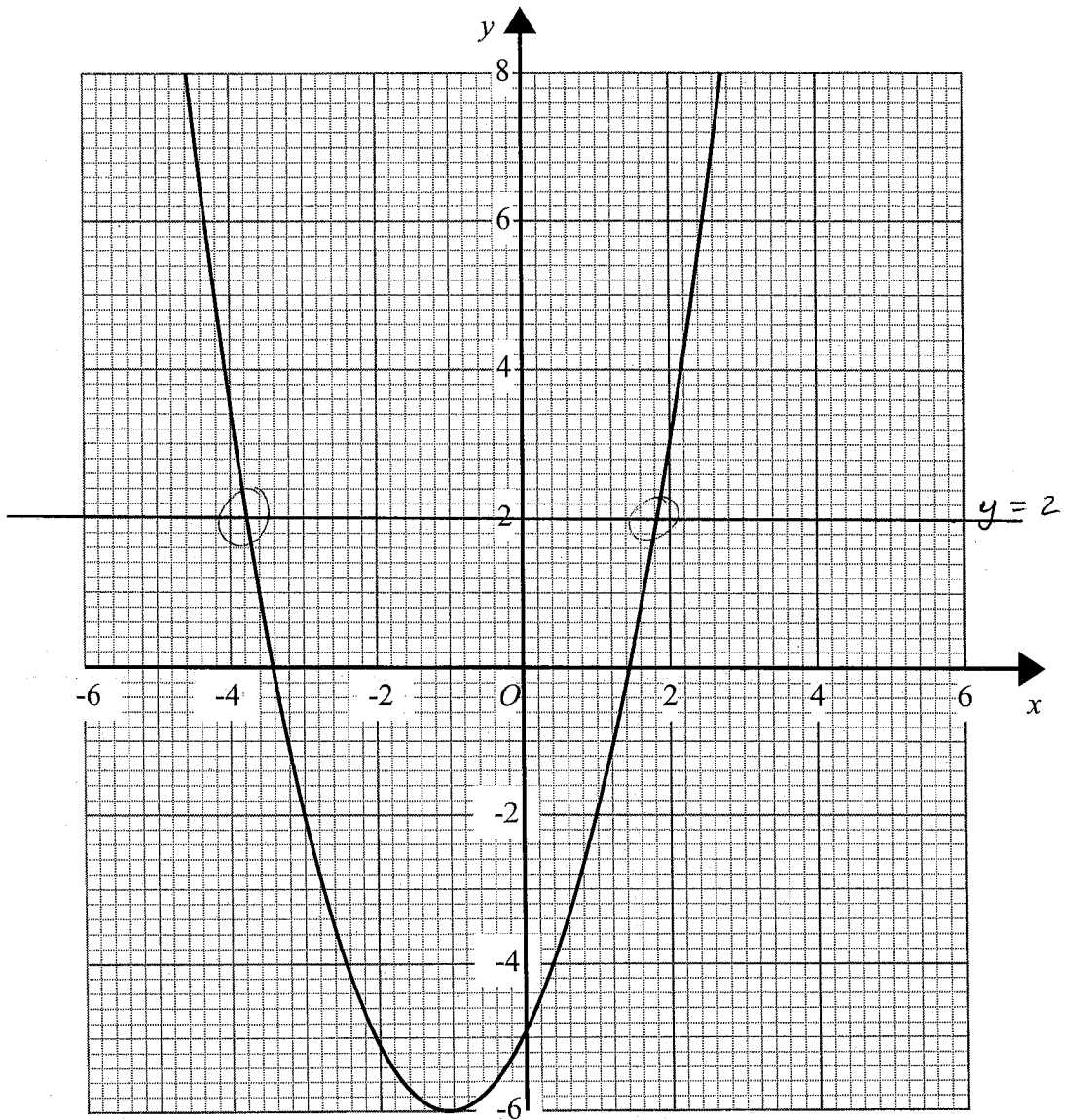
.....
 -1.6 and 3.6

(2)

(Total for question 2 is 3 marks)

accept -1.5 to -1.5
 3.5 to 3.6

3 Here is the graph of $y = x^2 + 2x - 5$



(a) Write down the turning point of the graph $y = x^2 + 2x - 5$

(.....,)
(1)

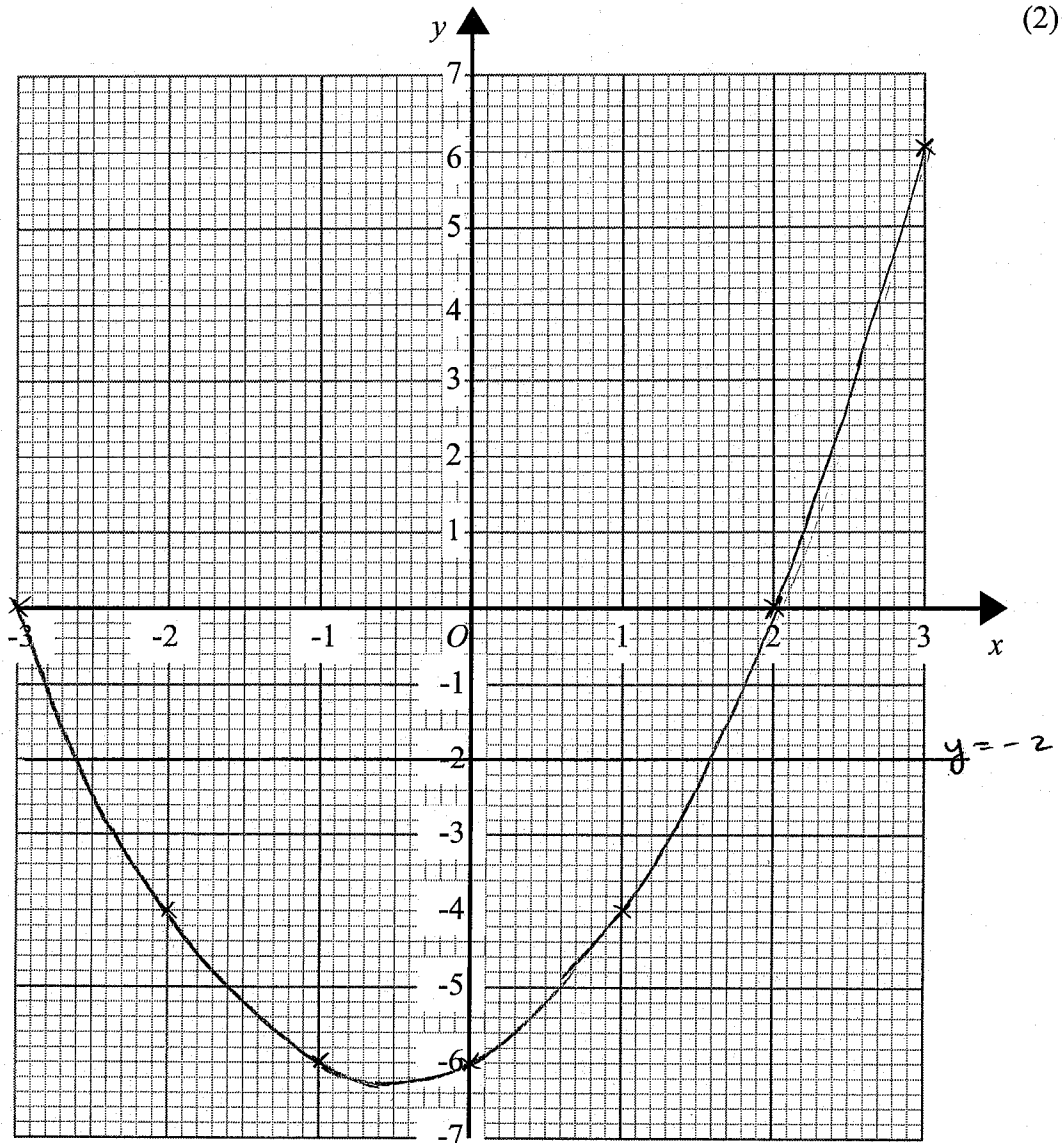
(b) Use the graph to find the roots of the equation $x^2 + 2x - 5 = 2$

.....
(2)

(Total for question 3 is 3 marks)

4 Complete the table of values for $y = x^2 + x - 6$

x	-3	-2	-1	0	1	2	3
y	0	-4	-6	-6	-4	0	6



(a) On the grid draw the graph of $y = x^2 + x - 6$ for values of x from -3 to 3 (2)

(b) Use the graph to find estimates of the solutions to the equation $x^2 + x - 6 = -2$

-2.6 and 1.6

(2)

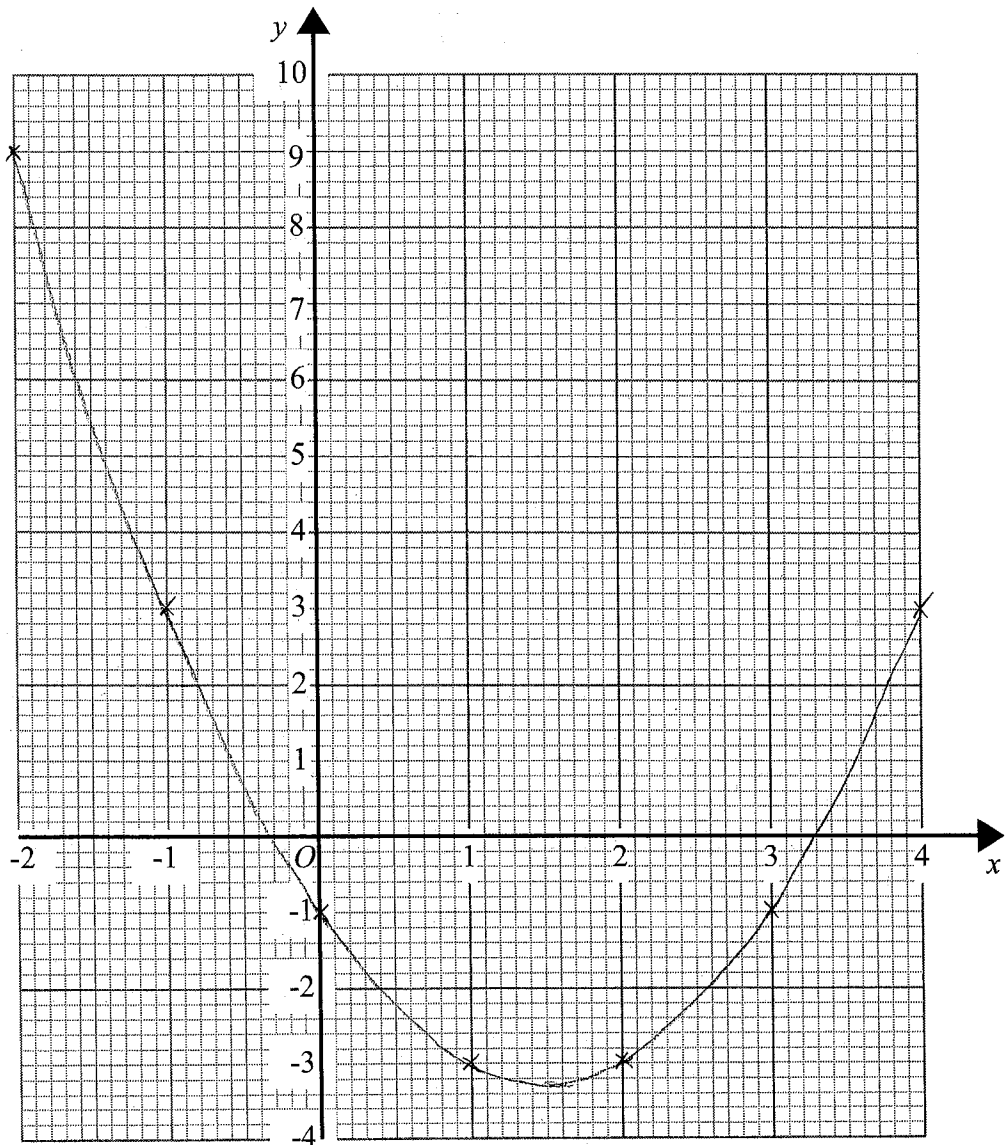
(Total for question 4 is 6 marks)

-2.6 to -2.5
 1.5 to 1.6

5

Complete the table of values for $y = x^2 - 3x - 1$

x	-2	-1	0	1	2	3	4
y	9	3	-1	-3	-3	-1	3



(a) On the grid draw the graph of $y = x^2 - 3x - 1$ for values of x from -2 to 4 (2)

(b) Use the graph to find an estimate of the turning point of the graph $y = x^2 - 3x - 1$

(1.5, -3.25)

(2)

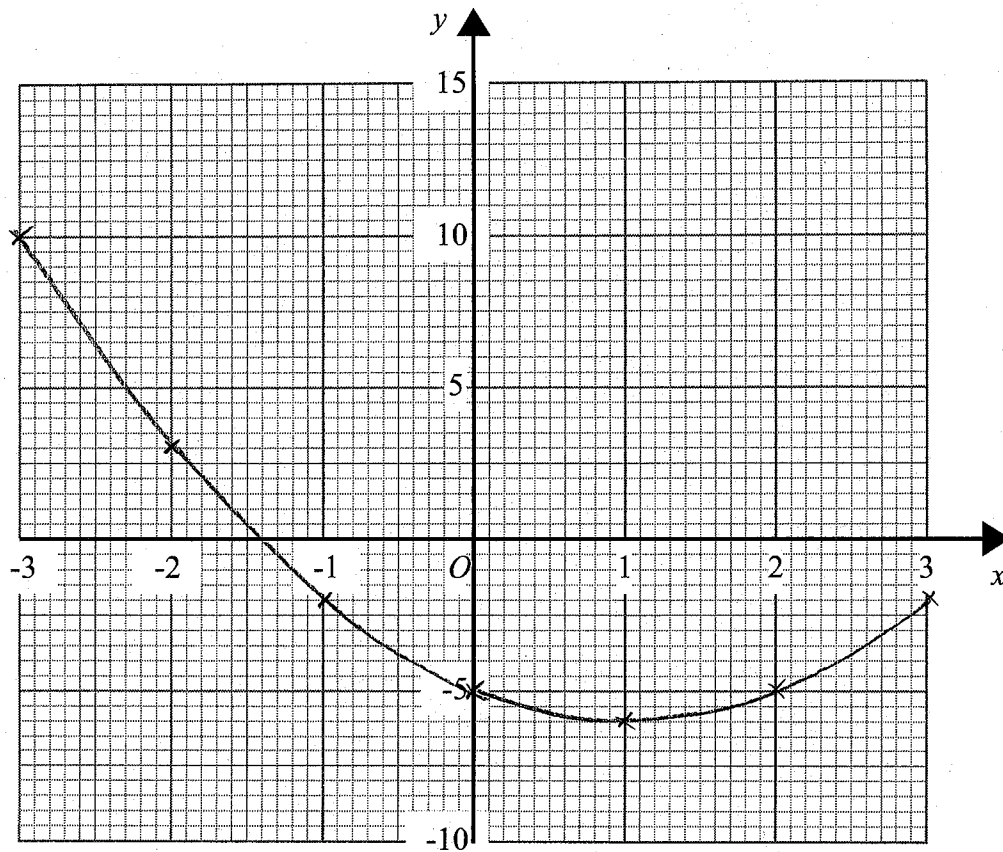
(Total for question 5 is 6 marks)

x : 1.5 only y : -3.1 to -3.5

6 Complete the table of values for $y = x^2 - 2x - 5$

x	-3	-2	-1	0	1	2	3
y	10	3	-2	-5	-6	-5	-2

(2)



(a) On the grid draw the graph of $y = x^2 - 2x - 5$ for values of x from -3 to 3

(2)

(b) Use the graph to find ^{an} estimates of ^a the solutions to the equation $x^2 = 2x + 5$

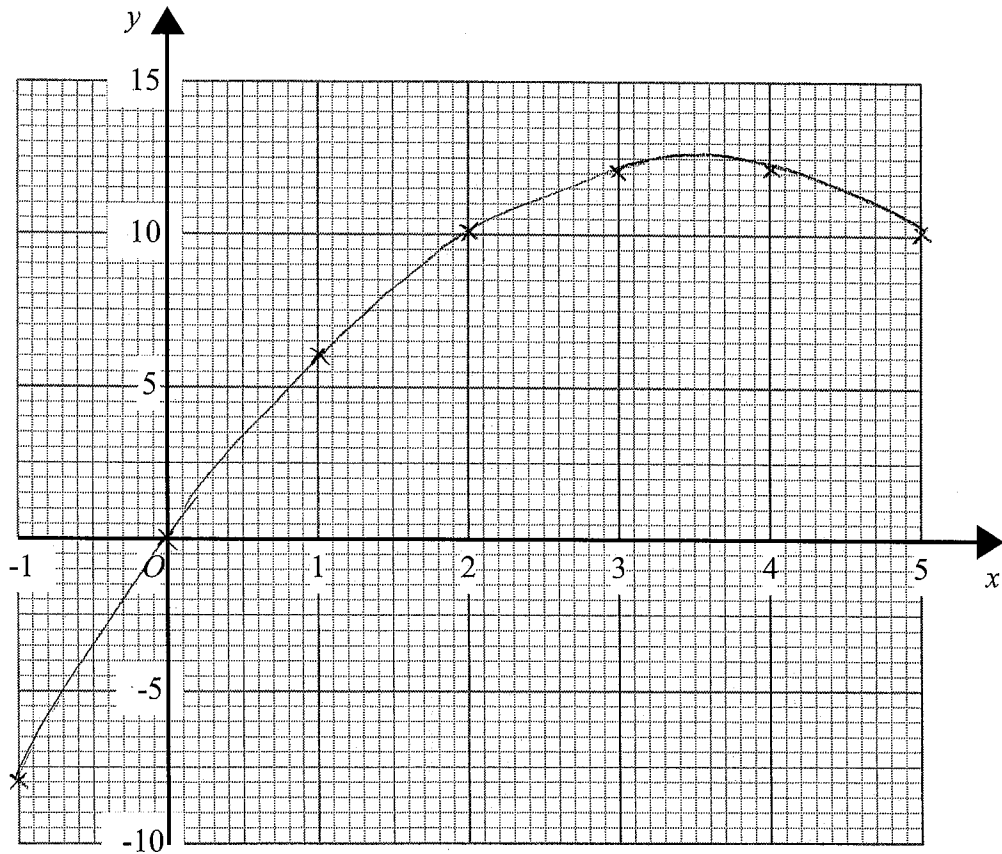
- 1.4

 -1.5 to -1.3 ~~to~~ 1
 (Total for question 6 is 6 marks)

7 Complete the table of values for $y = 7x - x^2$

x	-1	0	1	2	3	4	5
y	-8	0	6	10	12	12	10

(2)



(a) On the grid draw the graph of $y = 7x - x^2$ for values of x from -1 to 5 (2)

(b) Use the graph to find an estimate of the turning point of the graph $y = 7x - x^2$

(c) Find the solutions to the equation $7x - x^2 = 0$

3.5, 12.5

 3.5 only, 12-13 (2)

$$x(7 - x) = 0$$

$$x = 0 \quad x = 7$$

.....
 $x = 0 \quad x = 7$
 (2)

(Total for question 7 is 8 marks)