

Quadratic Graphs

For Pearson Edexcel GCSE Mathematics (1MA1) • Foundation tier

Name _____

Total marks: **26**

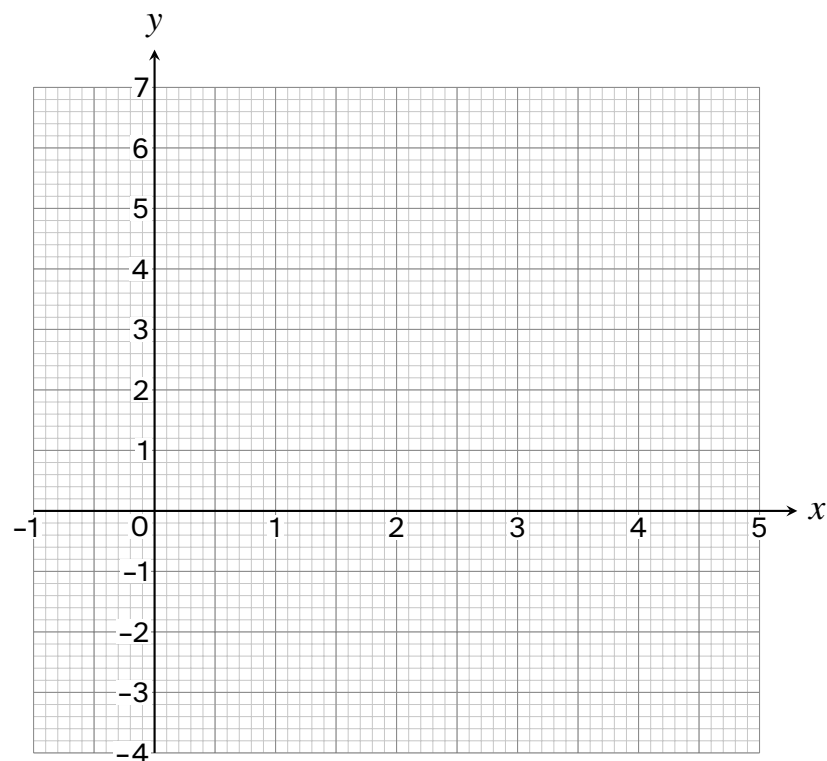
Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

- 1 (a) Complete the table of values for $y = x^2 - 4x + 1$

x	-1	0	1	2	3	4	5
y	6		-2		-2		6

(2)

- (b) On the grid, draw the graph of $y = x^2 - 4x + 1$ for values of x from -1 to 5



(2)

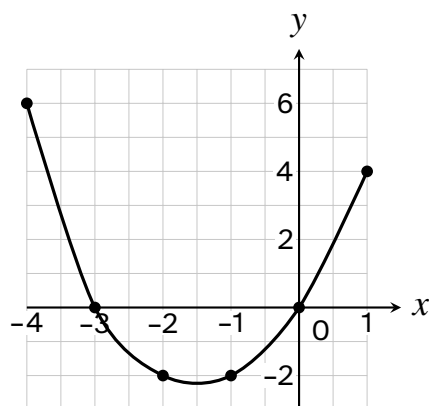
(c) Write down the coordinates of the turning point of the graph of $y = x^2 - 4x + 1$

(..... ,)

(1)

(Total for Question 1 is 5 marks)

- 2** Amir draws the graph of $y = x^2 + 3x$ for values of x from -4 to 1
Here is his graph.



Amir has plotted one of the points wrongly.

Find the correct coordinates of the point that Amir has plotted wrongly.

(..... ,)

(1)

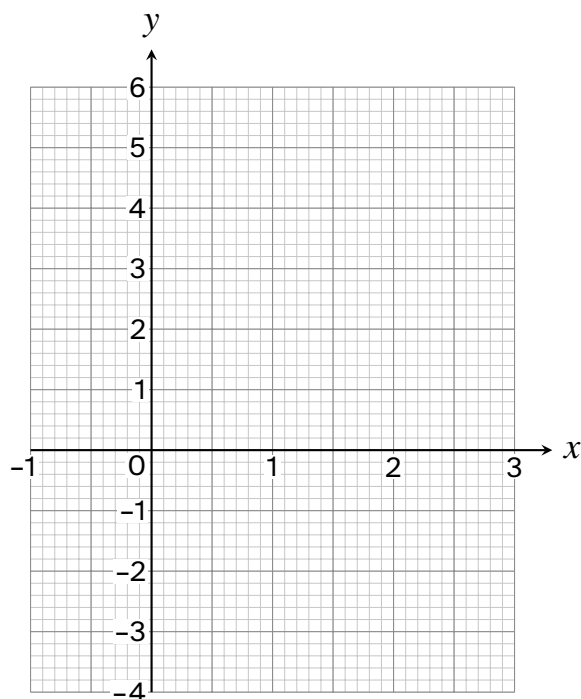
(Total for Question 2 is 1 mark)

- 3** (a) Complete the table of values for $y = 2x^2 - 4x - 1$

x	-1	0	1	2	3
y	5		-3		

(2)

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



(2)

- (c) Use your graph to find estimates of the values of x when $y = 2$

.....

(2)

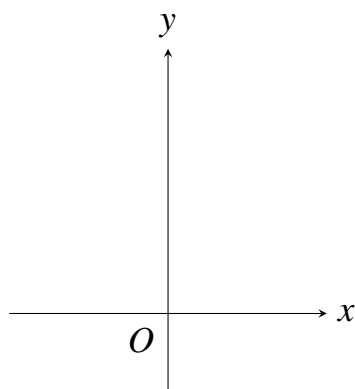
(Total for Question 3 is 6 marks)

- 4** Explain why the graph of $y = x^2 + 4$ does not cross the x -axis.

(1)

(Total for Question 4 is 1 mark)

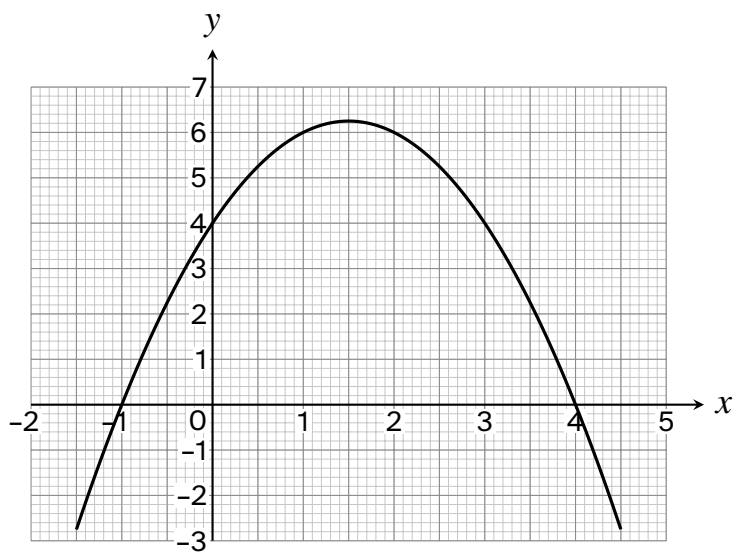
- 5 Sketch the graph of $y = x^2 + 3$



(2)

(Total for Question 5 is 2 marks)

- 6 Here is the graph of $y = 4 + 3x - x^2$



- (a) Write down the coordinates of the point where the graph crosses the y-axis.

(..... ,)
(1)

(b) Use the graph to solve $4 + 3x - x^2 = 0$

.....
(2)

(c) The graph is symmetrical.
Write down the equation of its line of symmetry.

.....
(1)

(d) Use the graph to find the maximum value of y .

.....
(1)

(Total for Question 6 is 5 marks)

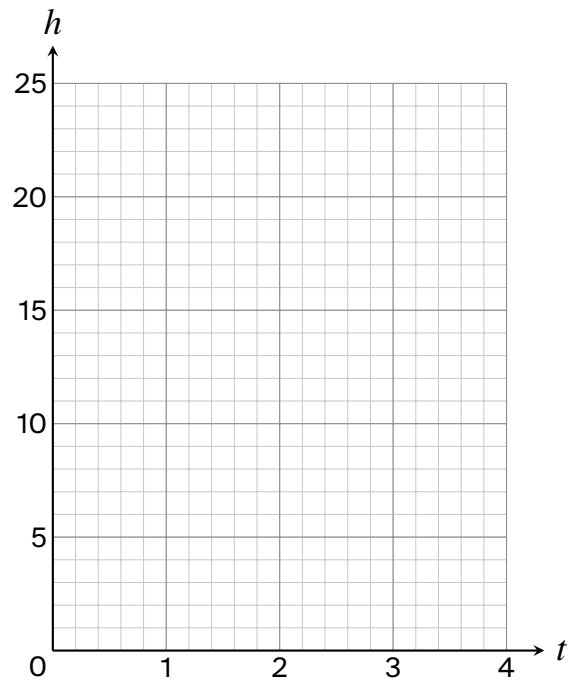
7 A ball is thrown upwards.
Its height, h metres, after t seconds is given by $h = 20t - 5t^2$

(a) Complete the table of values.

t	0	1	2	3	4
h	0	15		15	

(1)

- (b) On the grid, draw the graph of h against t .



(2)

- (c) Write down the greatest height of the ball.

..... m
(1)

- (d) Use your graph to find the two times when the ball is 10 m above the ground.

..... seconds
(2)

(Total for Question 7 is 6 marks)