GCSE · Edexcel · Maths

2 hours 20 questions

Exam Questions

Graphs of Functions

Types of Graphs / Quadratic Graphs / Drawing Graphs from Tables

Easy (8 questions)	/49
Medium (6 questions)	/48
Hard (6 questions)	/40
Total Marks	**/137**

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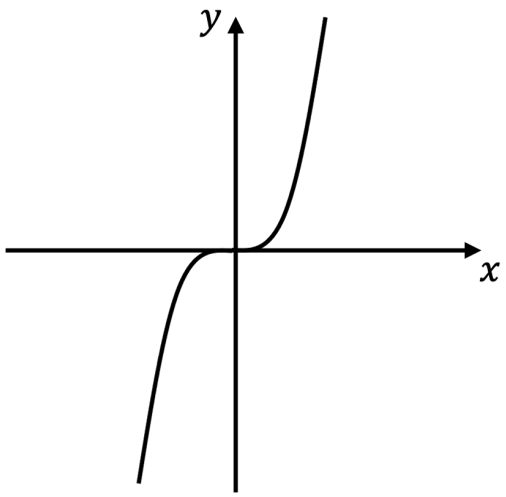
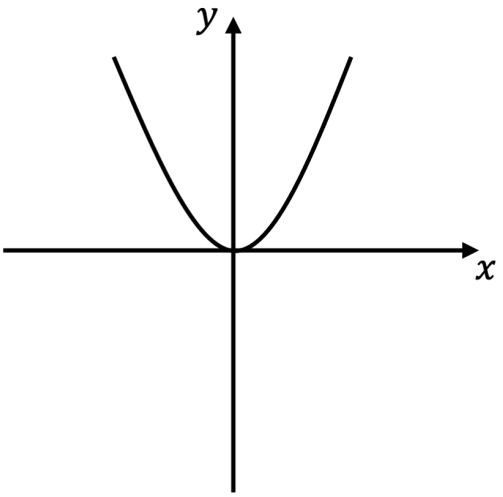
Easy Questions

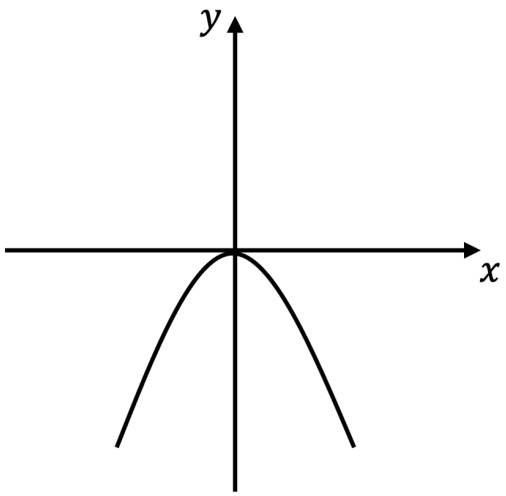
1 The diagram shows four graphs.



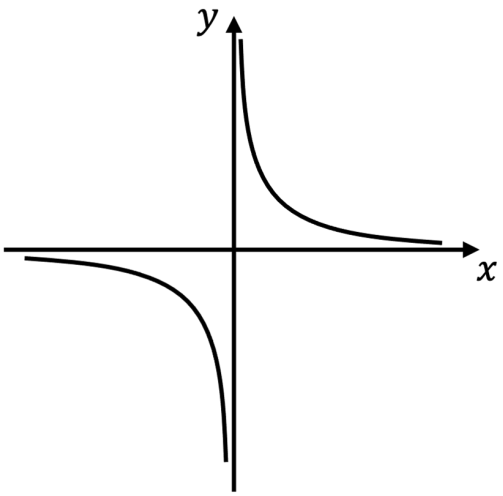
Graph A



Graph B



Graph C



Graph D

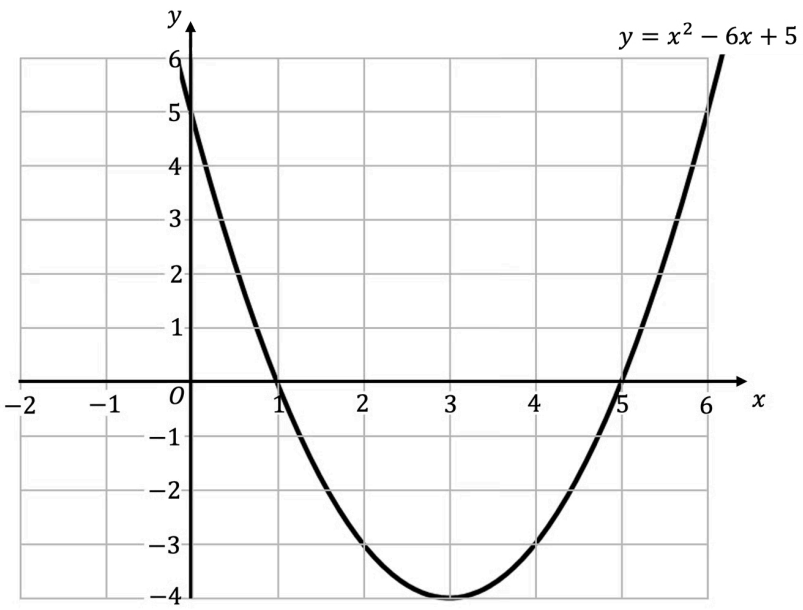
Each of the equations in the table is the equation of one of the graphs.

Complete the table.

Equation	Letter of Graph
$y = -x^2$	
$y = \frac{1}{x}$	
$y = x^2$	
$y = x^3$	

(2 marks)

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



Use your graph to find the solutions to $0 = x^2 - 6x + 5$

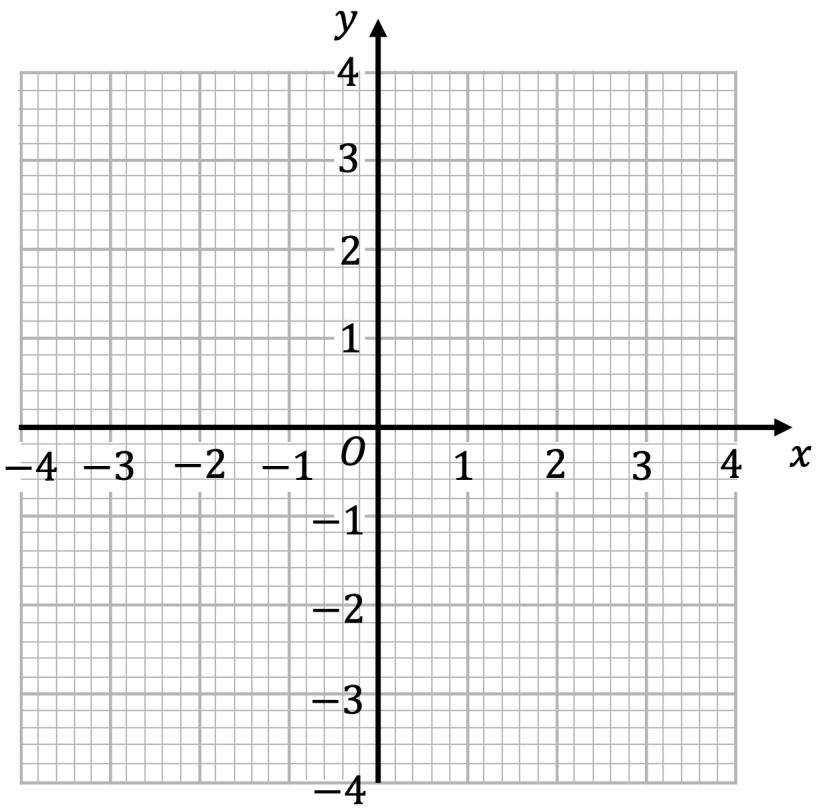
(2 marks)

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

x	-4	-3	-2	-1	0	1	2	3	4
y	-0.25					1	0.5		

(2 marks)

(b) On the grid, draw the graph $y = \frac{1}{x}$ for $-4 \leq x \leq 4$.



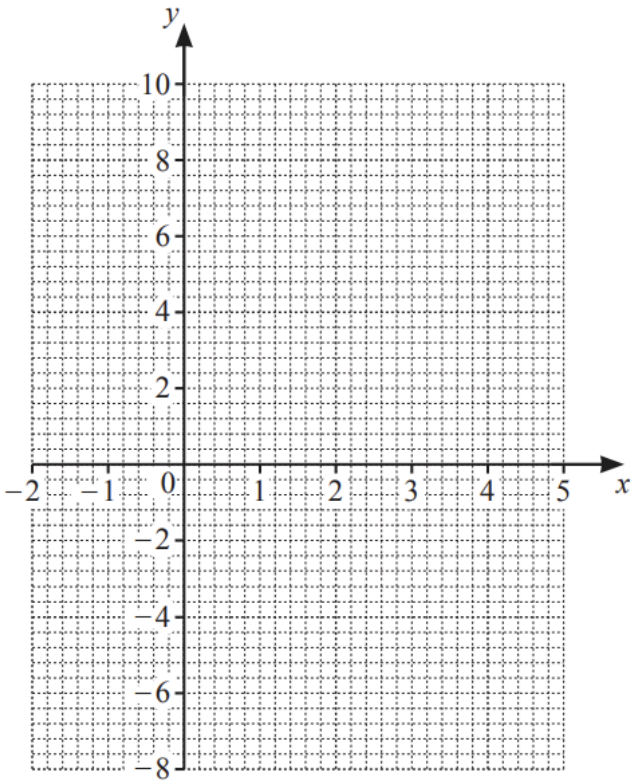
(4 marks)

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

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

(2 marks)

(b) On the grid, draw the graph of $y = x^2 - 4x - 3$ for $-2 \leqslant x \leqslant 5$.



(4 marks)

(c) Use your graph to solve the equation $x^2 - 4x - 3 = 0$.

x = ...

or x = ...

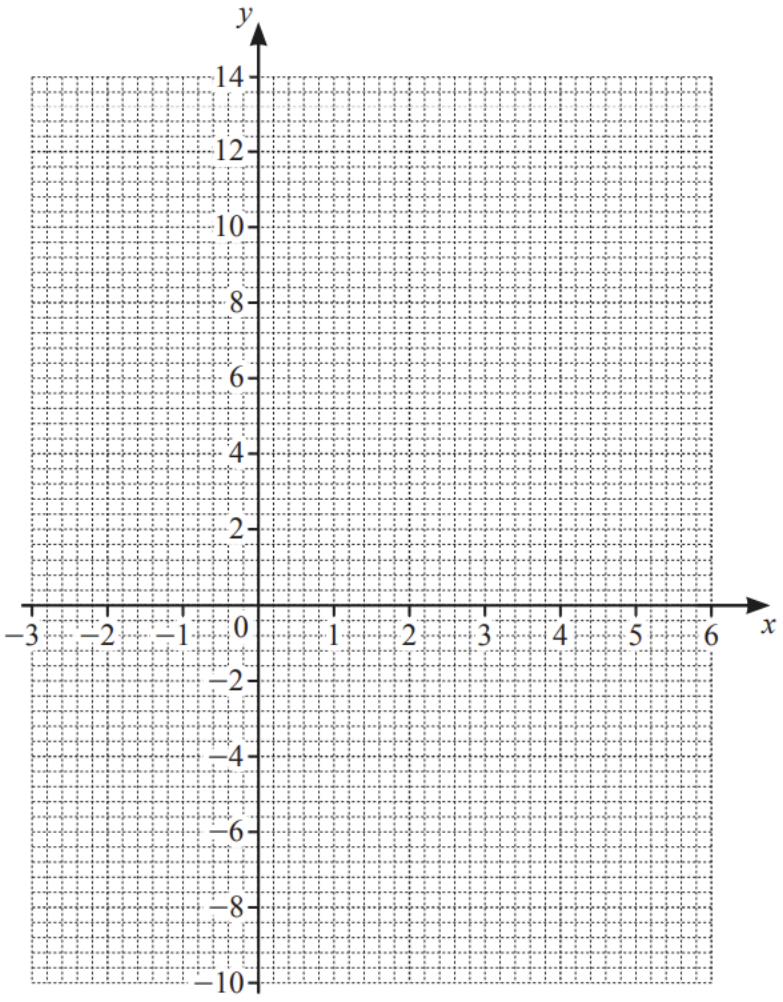
(2 marks)

5 (a) Complete the table of values for $y = x^2 - 3x - 6$

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

(3 marks)

(b) On the grid, draw the graph of $y = x^2 - 3x - 6$ for $-3 \leqslant x \leqslant 6$.



(4 marks)

(c) Write down the equation of the line of symmetry of the graph.

(1 mark)

(d) Use your graph to solve the equation $x^2 - 3x - 6 = 0$

x = ... or x = ...

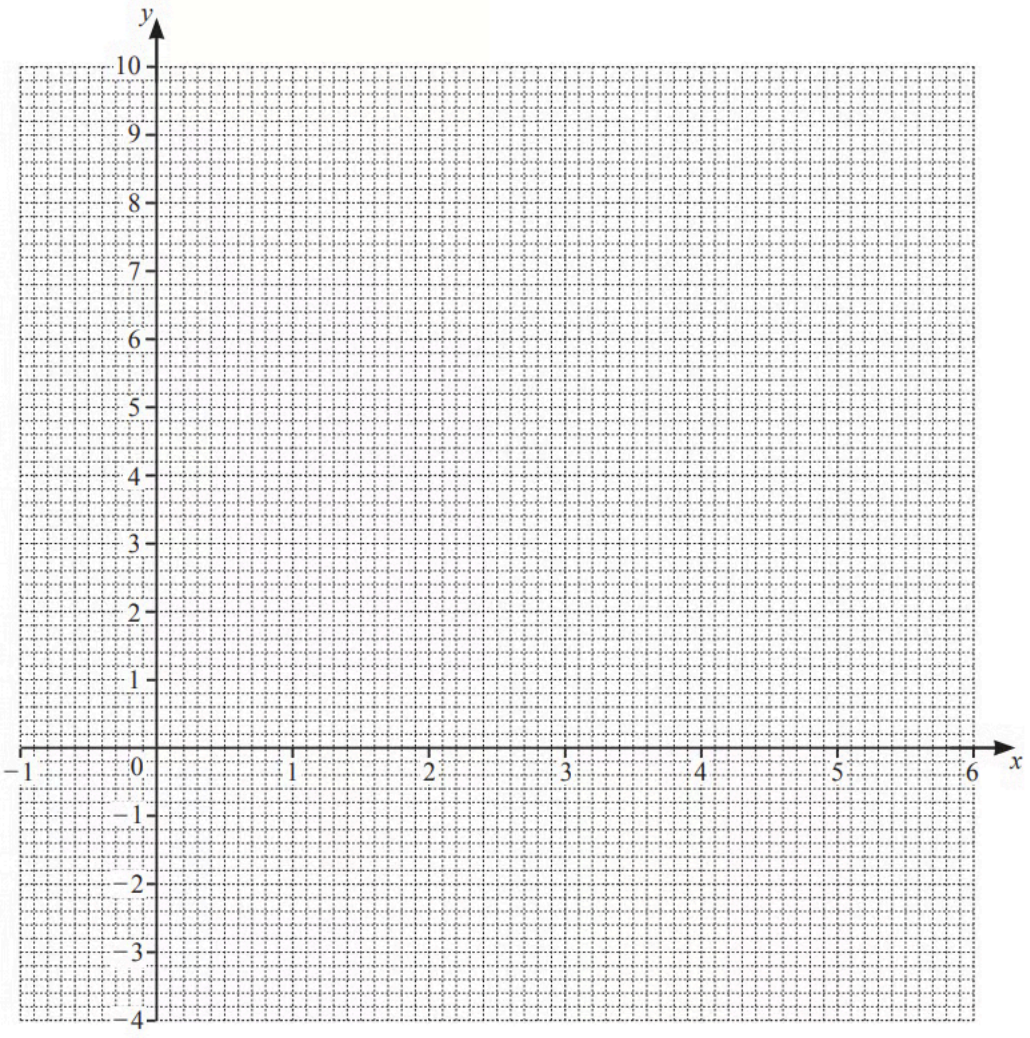
(2 marks)

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

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

(2 marks)

(b) On the grid, draw the graph of $y = x^2 - 5x + 3$ for $-1 \leqslant x \leqslant 6$.



(4 marks)

(c) Use your graph to solve the equation $x^2 - 5x + 3 = 0$

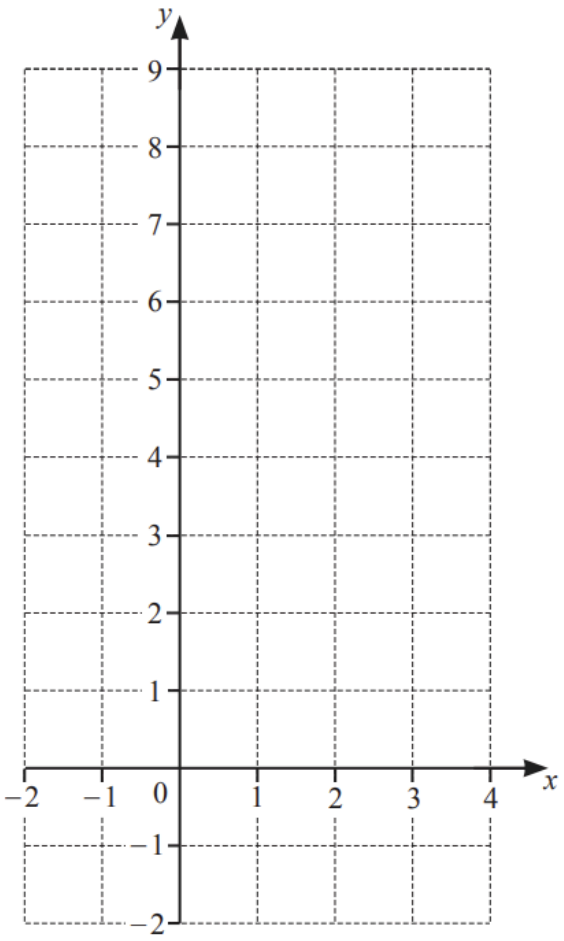
x = ... or x = ...

(2 marks)

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

x	-2	-1	0	1	2	3	4
y	8		0	-1	0		8

ii) On the grid, draw the graph of $y = x^2 - 2x$ for $-2 \leqslant x \leqslant 4$.



[4]

(5 marks)

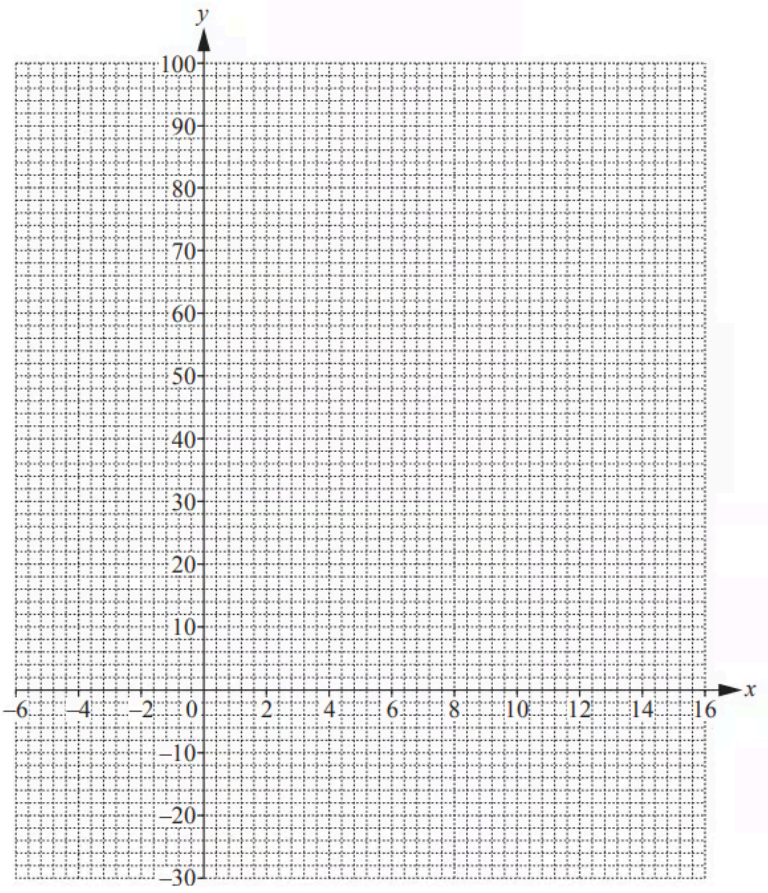
8 i) Complete the table of values for $y = x^2 - 10x$.

x	-6	-3	0	3	6	9	12	15
y	96			-21	-24		24	75

[3]

ii) On the grid, draw the graph of

$y = x^2 - 10x$ for $-6 \leq x \leq 15$.



[4]

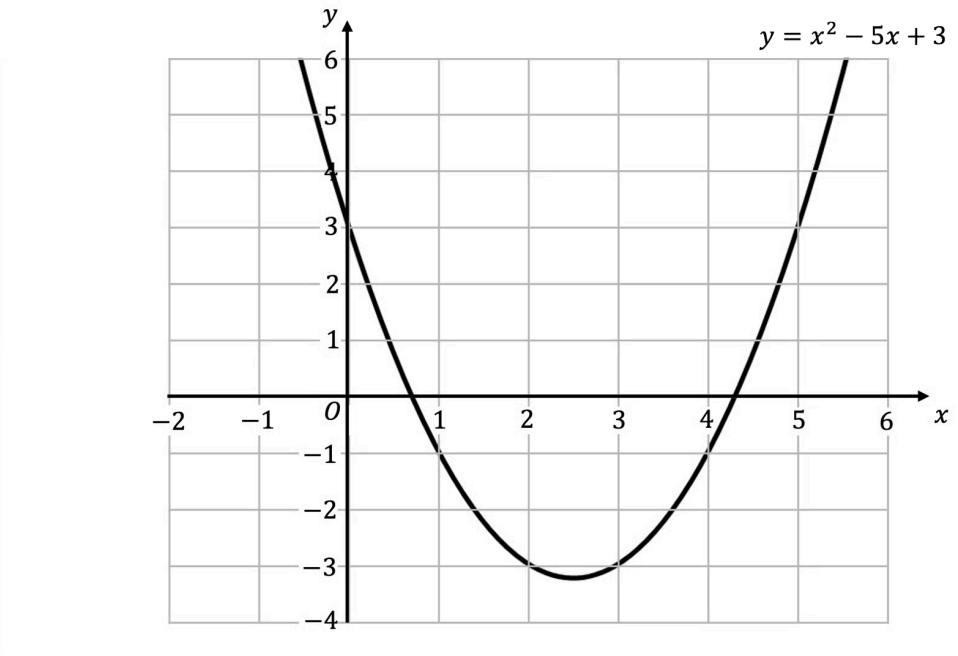
iii) Write down the co-ordinates of the lowest point of the graph.

[1]

(8 marks)

Medium Questions

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



Use your graph to find estimates of the solutions to $0 = x^2 - 5x + 3$

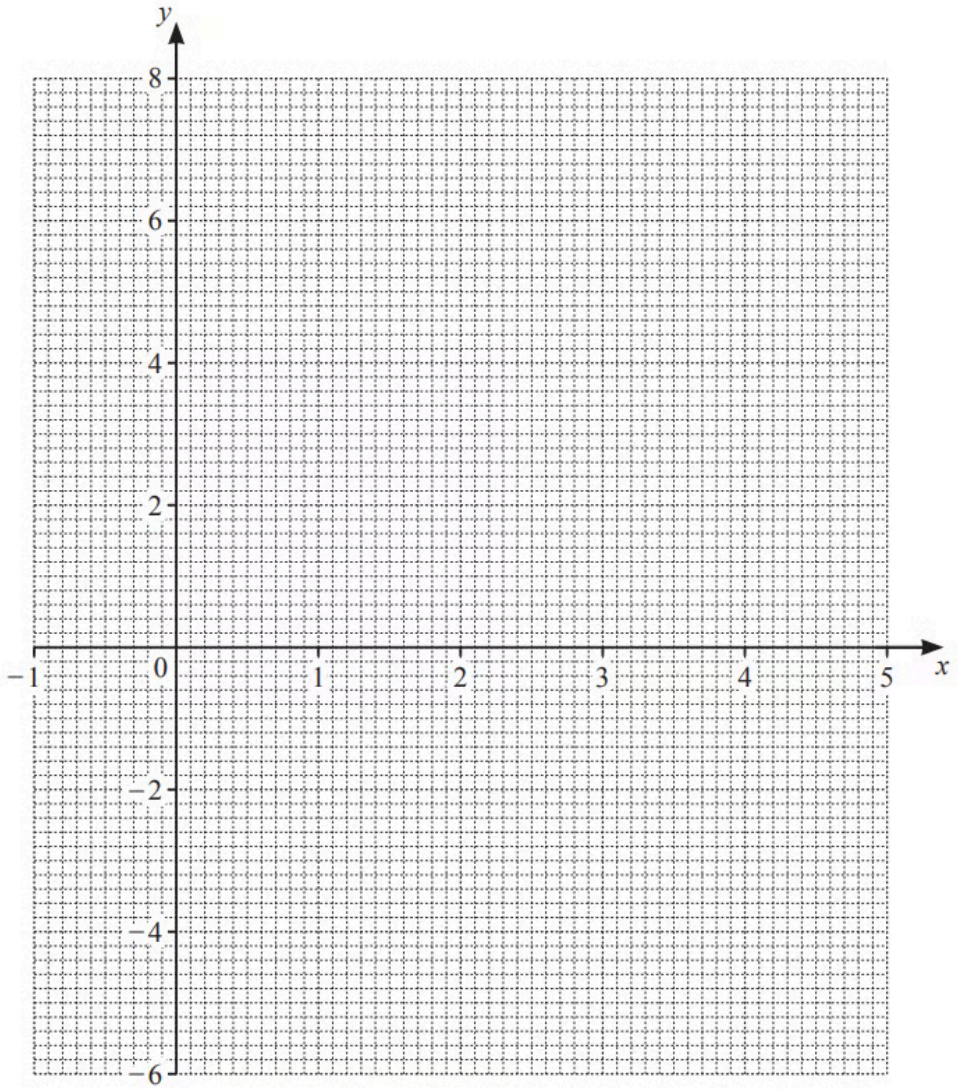
(2 marks)

2 (a) Complete the table of values for $y = 1 + 5x - x^2$

x	-1	0	1	2	3	4	5
y		1	5		7		1

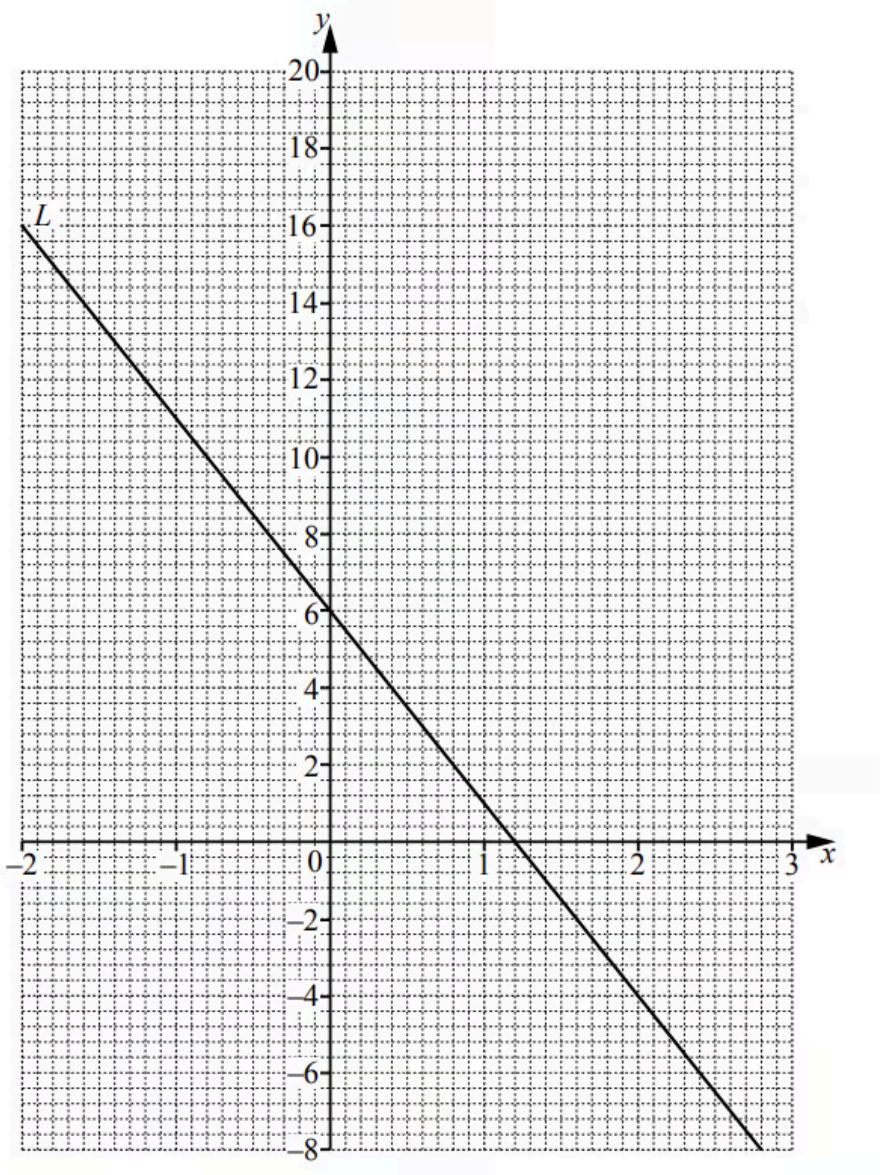
(2 marks)

(b) On the grid, draw the graph of $y = 1 + 5x - x^2$ for $-1 \leqslant x \leqslant 5$.



(4 marks)

3 (a)



The line L is shown on the grid.
Find the equation of the line in the form $y = mx + c$.

y = ...

(3 marks)

(b) i) Complete the table of values for $y = x^2 + 2x + 4$.

x	-2	-1	0	1	2	3
y	4		4	7		19

[2]

ii) On the grid opposite, draw the graph of $y = x^2 + 2x + 4$ for $-2 \leqslant x \leqslant 3$.

[4]

(6 marks)

(c) For $-2 \leqslant x \leqslant 3$, write down the x-coordinate of the point of intersection of the line L with the curve
$y = x^2 + 2x + 4$.

$x =$ .....

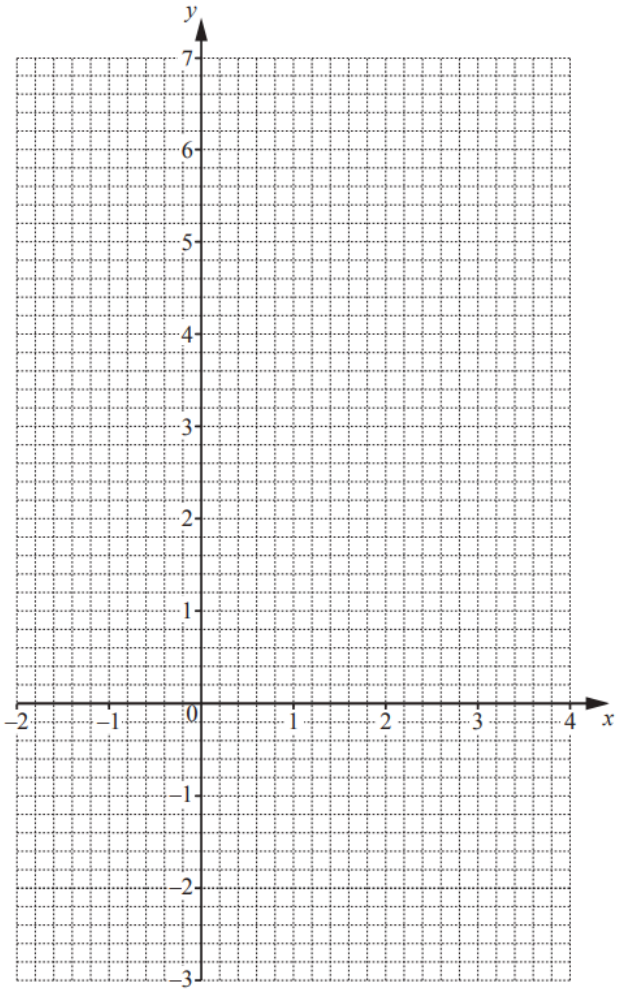
(1 mark)

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

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

(2 marks)

(b) On the grid, draw the graph of $y = 5 + 2x - x^2$ for $-2 \leqslant x \leqslant 4$.



(4 marks)

(c) i) On the grid, draw the line of symmetry.

[1]

ii) Write down the equation of the line of symmetry.

[1]
(2 marks)

(d) i) On the grid, draw a line from $(-1, 2)$ to $(1, 6)$.

[1]

ii) Find the equation of this line in the form $y = mx + c$.

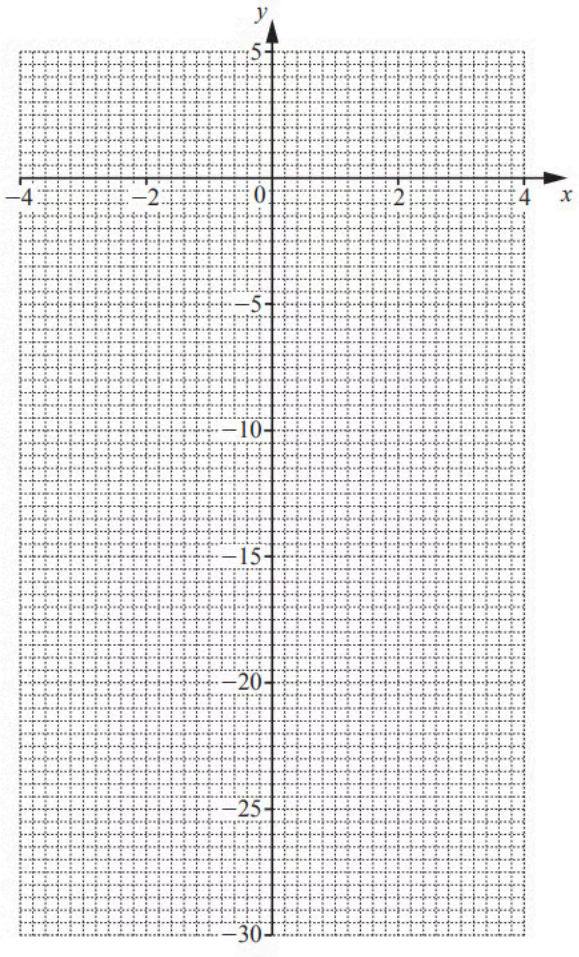
$y =$ ..... [3]
(4 marks)

5 i) Complete the table of values for $y = x(3 - x)$.

x	-4	-2	-1	0	1	2	4
y		-10		0	2		-4

[3]

ii) On the grid, draw the graph of $y = x(3 - x)$ for $-4 \leqslant x \leqslant 4$.



[4]

iii) Write down the co-ordinates of the highest point of the graph for $-4 \leqslant x \leqslant 4$.

[1]

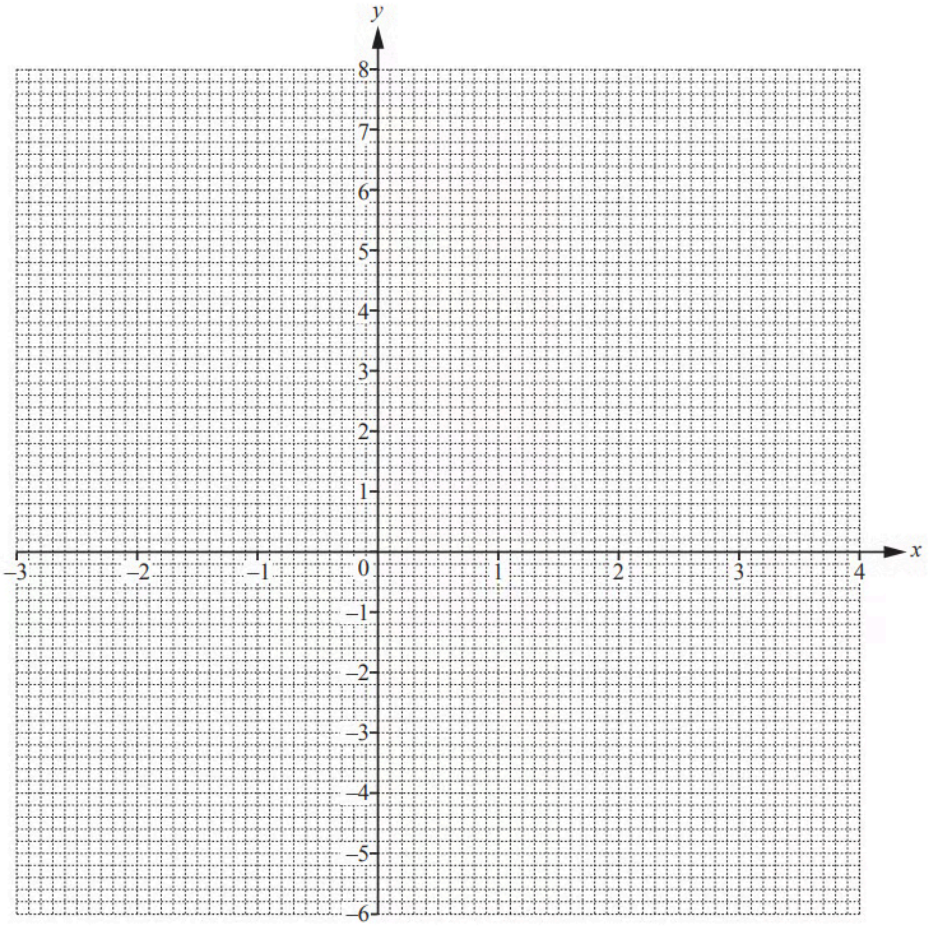
(8 marks)

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

x	-3	-2	-1	0	1	2	3	4
y	7		-3		-5			

[3]

ii) On the grid, draw the graph of $y = x^2 - x - 5$ for $-3 \leqslant x \leqslant 4$.



[4]

iii) Write down the co-ordinates of the lowest point on the graph.

[1]

iv)

a) On the grid, draw the line of symmetry of the graph.

[1]

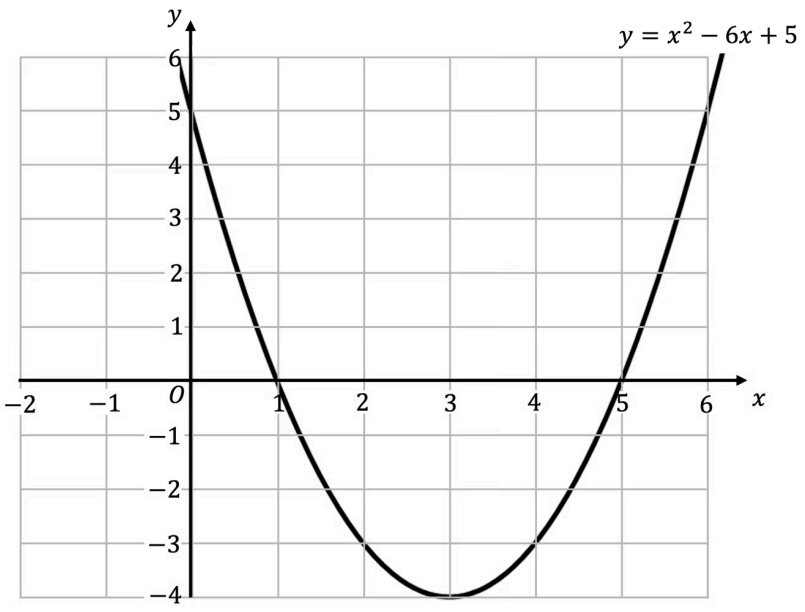
b) Write down the equation of this line.

[1]

(10 marks)

Hard Questions

1 Here is the graph of $y = x^2 - 6x + 5$



Use your graph to find the solutions to $x^2 - 6x + 5 = -3$

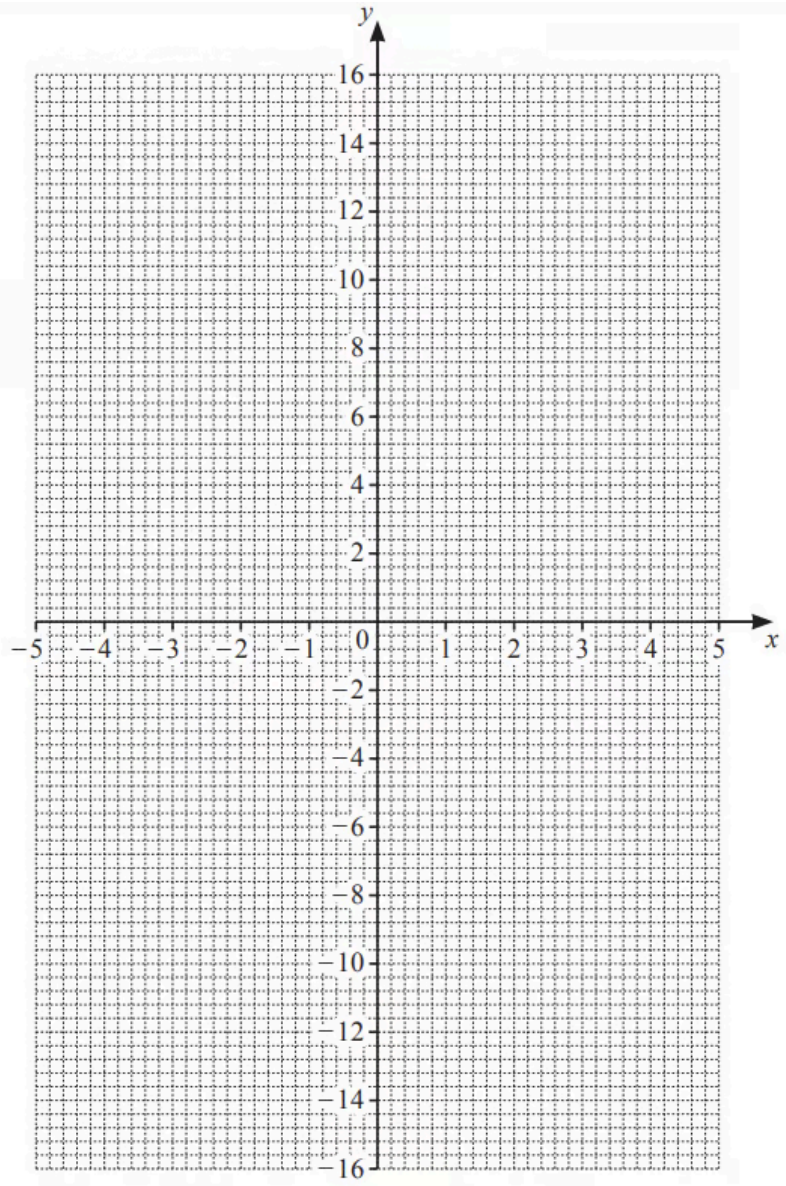
(2 marks)

2 (a) Complete the table of values for $y = \frac{15}{x}$

x	-5	-3	-2	-1		1	2	3	5
y				-15		15			

(3 marks)

(b) On the grid, draw the graph of $y = \frac{15}{x}$ for $-5 \leqslant x \leqslant -1$ and $1 \leqslant x \leqslant 5$.



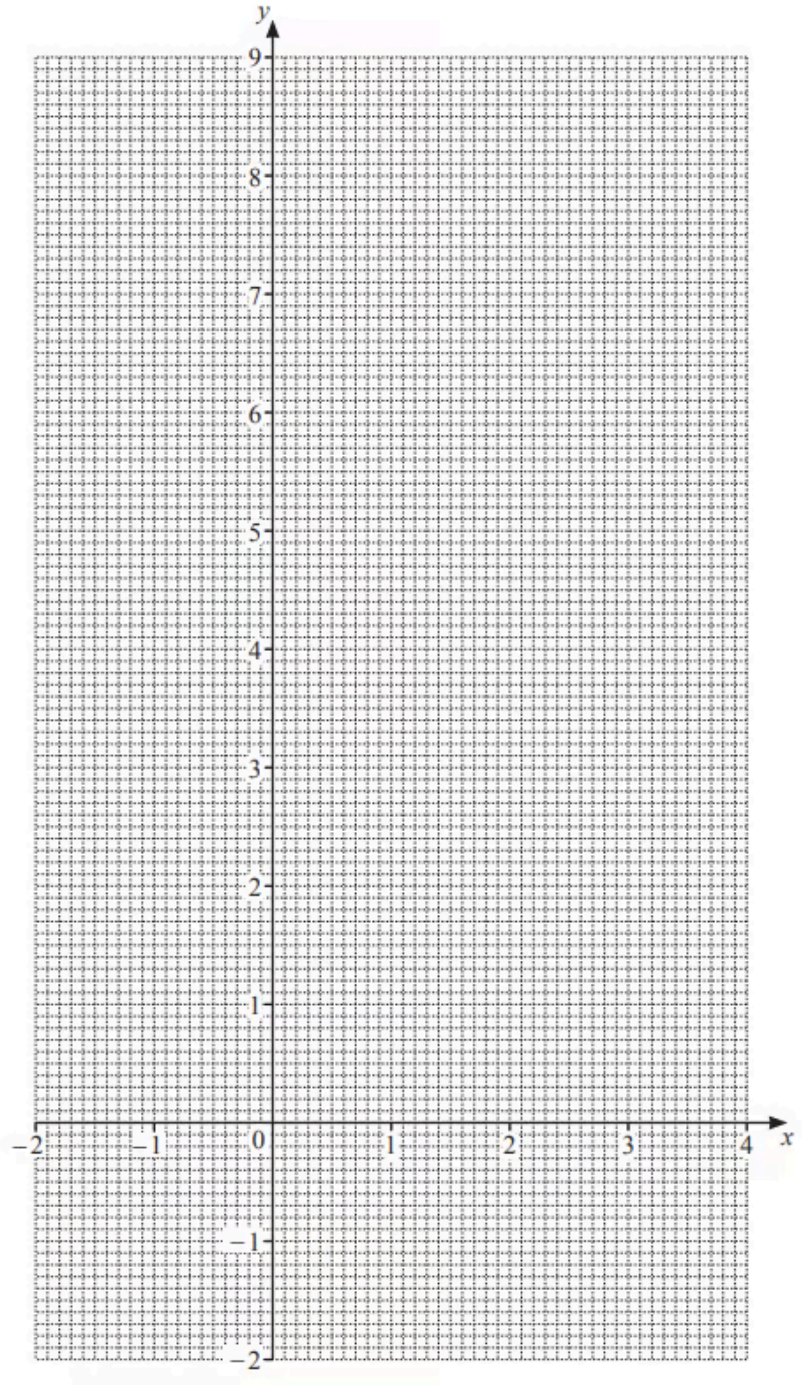
(4 marks)

3 (a) Complete the table of values for $y = 7 + 2x - x^2$

x	-2	-1	0	1	2	3	4
y	-1			8	7		-1

(2 marks)

(b) On the grid, draw the graph of $y = 7 + 2x - x^2$ for $-2 \leqslant x \leqslant 4$.



(4 marks)

(c) Write down the equation of the line of symmetry of the graph.

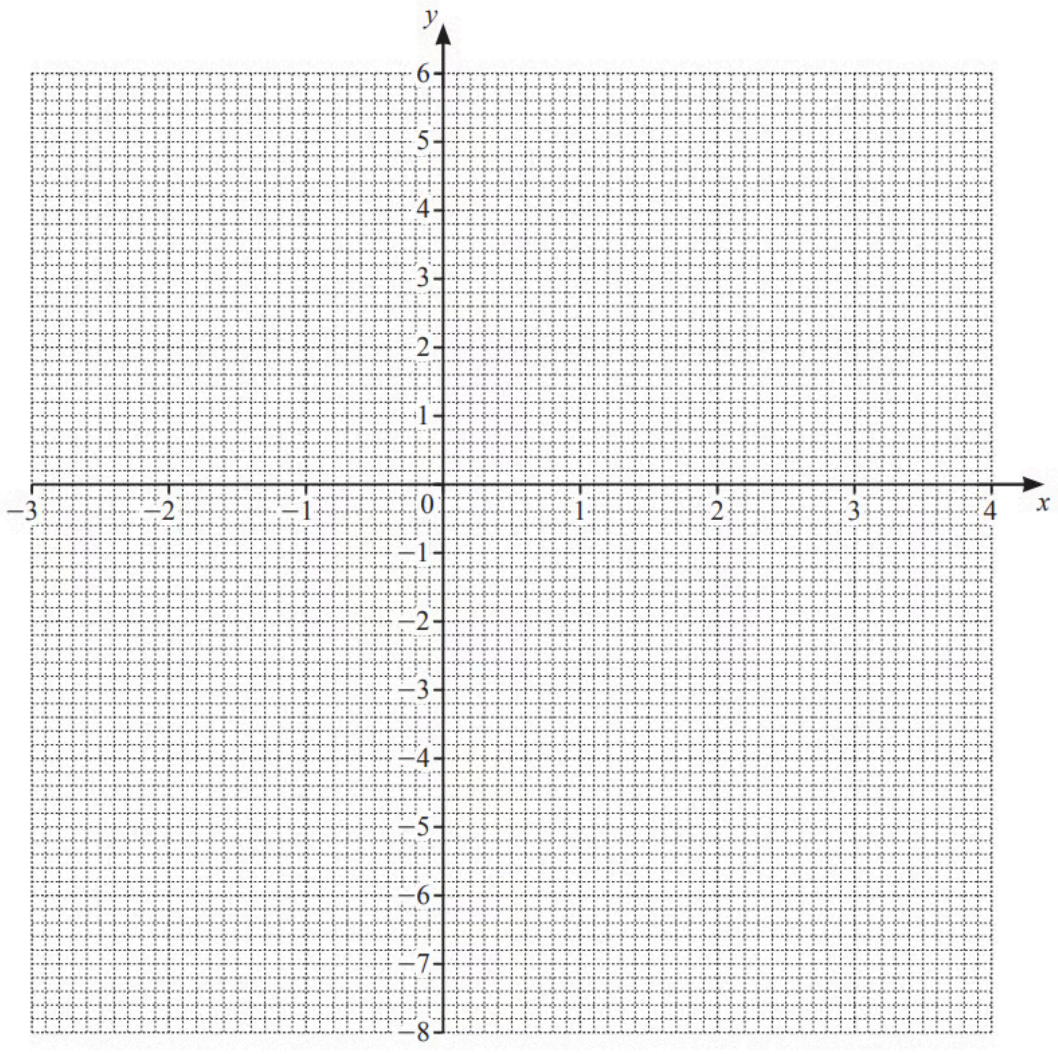
(1 mark)

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

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

(3 marks)

(b) On the grid, draw the graph of $y = -x^2 + x + 5$ for $-3 \leqslant x \leqslant 4$.



(4 marks)

(c) Write down the coordinates of the highest point of the graph.

(1 mark)

(d) Write down the equation of the line of symmetry of the graph.

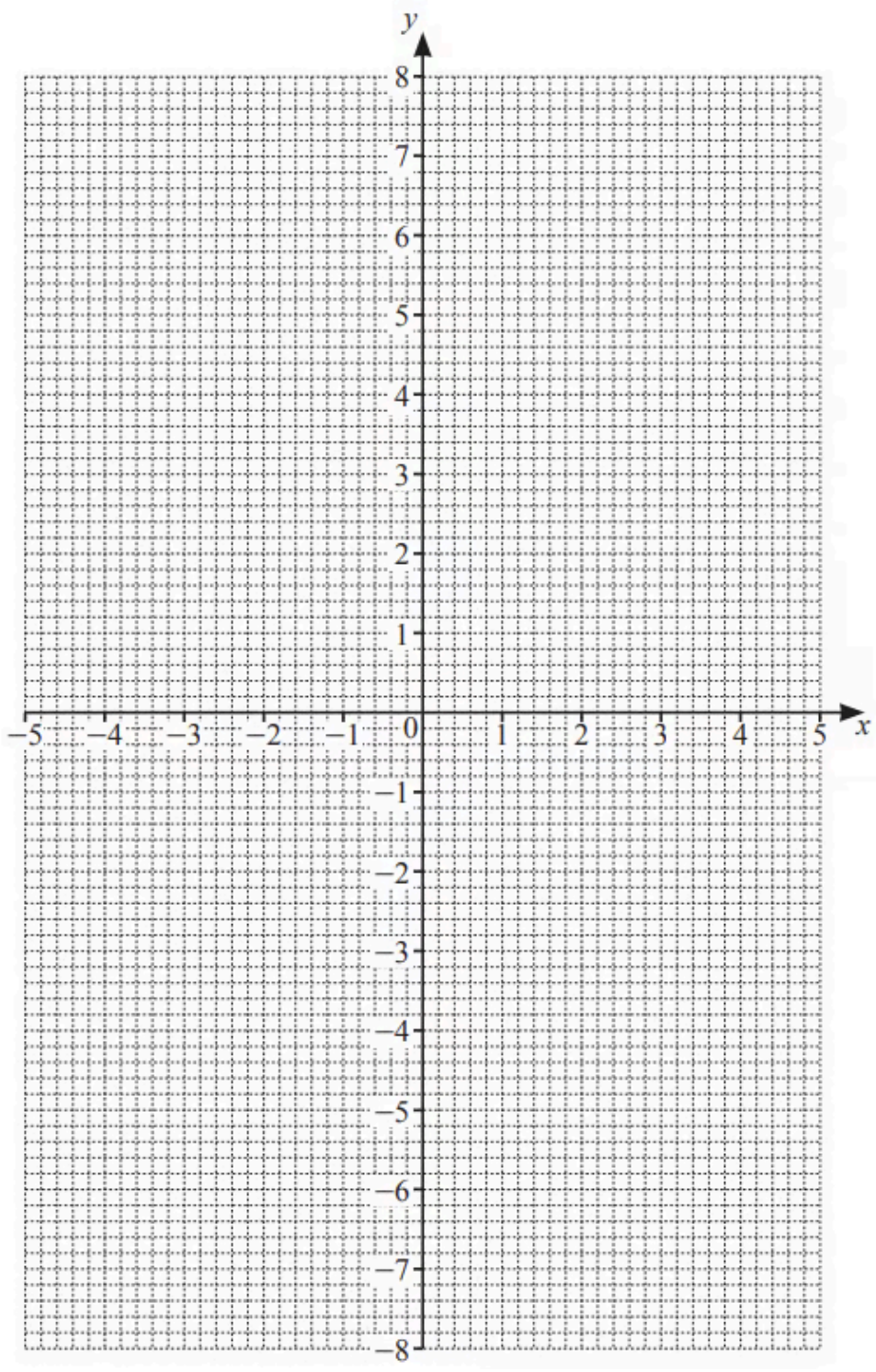
(1 mark)

5 (a) Complete the table of values for $y = \frac{8}{x}$.

x	-5	-4	-3	-2	-1		1	2	3	4	5
y		-2	-2.7	-4	-8		8	4	2.7		

(2 marks)

(b) On the grid, draw the graph of $y = \frac{8}{x}$ for $-5 \leqslant x \leqslant -1$ and $1 \leqslant x \leqslant 5$.



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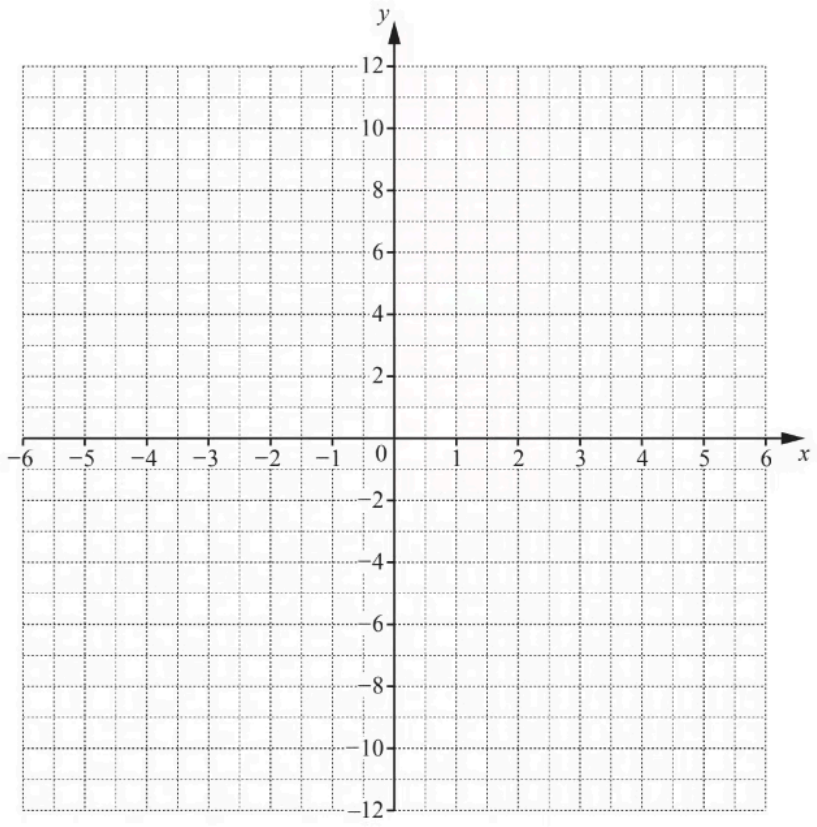
(4 marks)

6 i) Complete the table of values for $y = \frac{12}{x}$, $x \neq 0$.

x	-6	-4	-3	-2	-1		1	2	3	4	6
y	-2	-3					12				2

[3]

ii) On the grid, draw the graph of $y = \frac{12}{x}$ for $-6 \leqslant x \leqslant -1$ and $1 \leqslant x \leqslant 6$.



[4]

(9 marks)