

Solve the simultaneous equations

$$y = 5x - 1$$

$$y = (x + 1)^2$$

Show clear algebraic working

Solve the simultaneous equations

$$xy = 12$$

$$y - 3x = -9$$

Show clear algebraic working.

Solve the simultaneous equations

$$y = 3x^2 + 7x + 9$$

$$y = 4x + 15$$

Show clear algebraic working.

.....

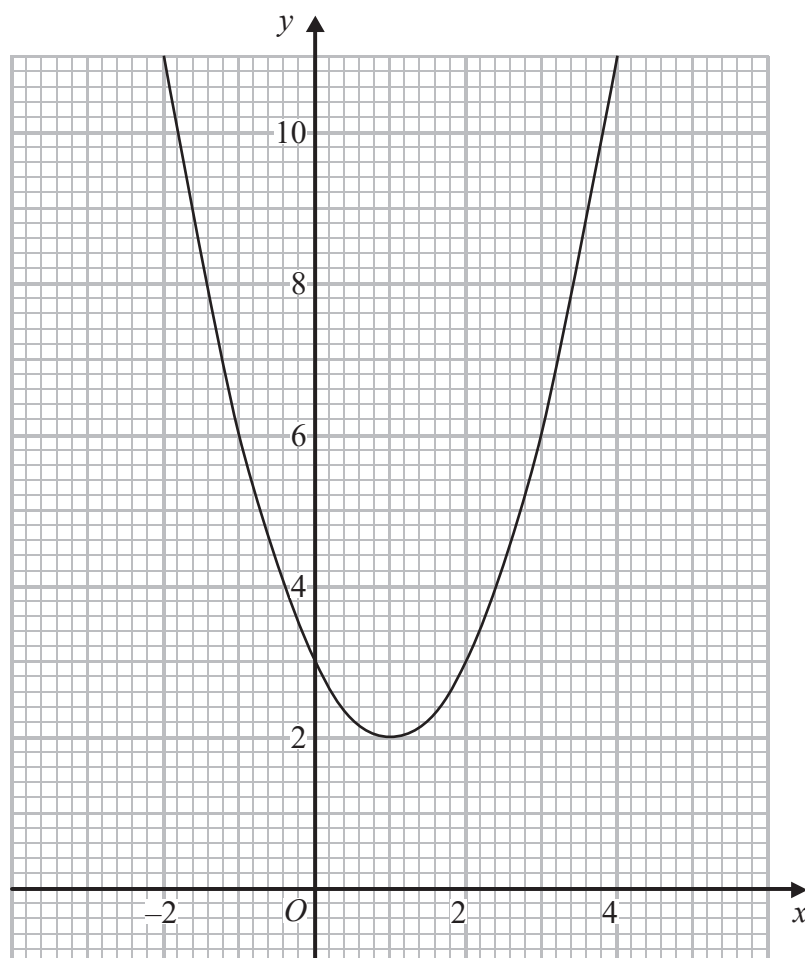
Solve the simultaneous equations

$$3y^2 + 4x^2 = 16$$

$$y - 2x = -4$$

Show clear algebraic working.

20 The diagram shows part of the graph of $y = x^2 - 2x + 3$



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- (a) By drawing a suitable straight line, use your graph to find estimates for the solutions of $x^2 - 3x - 1 = 0$

.....
(2)

P is the point on the graph of $y = x^2 - 2x + 3$ where $x = 2$

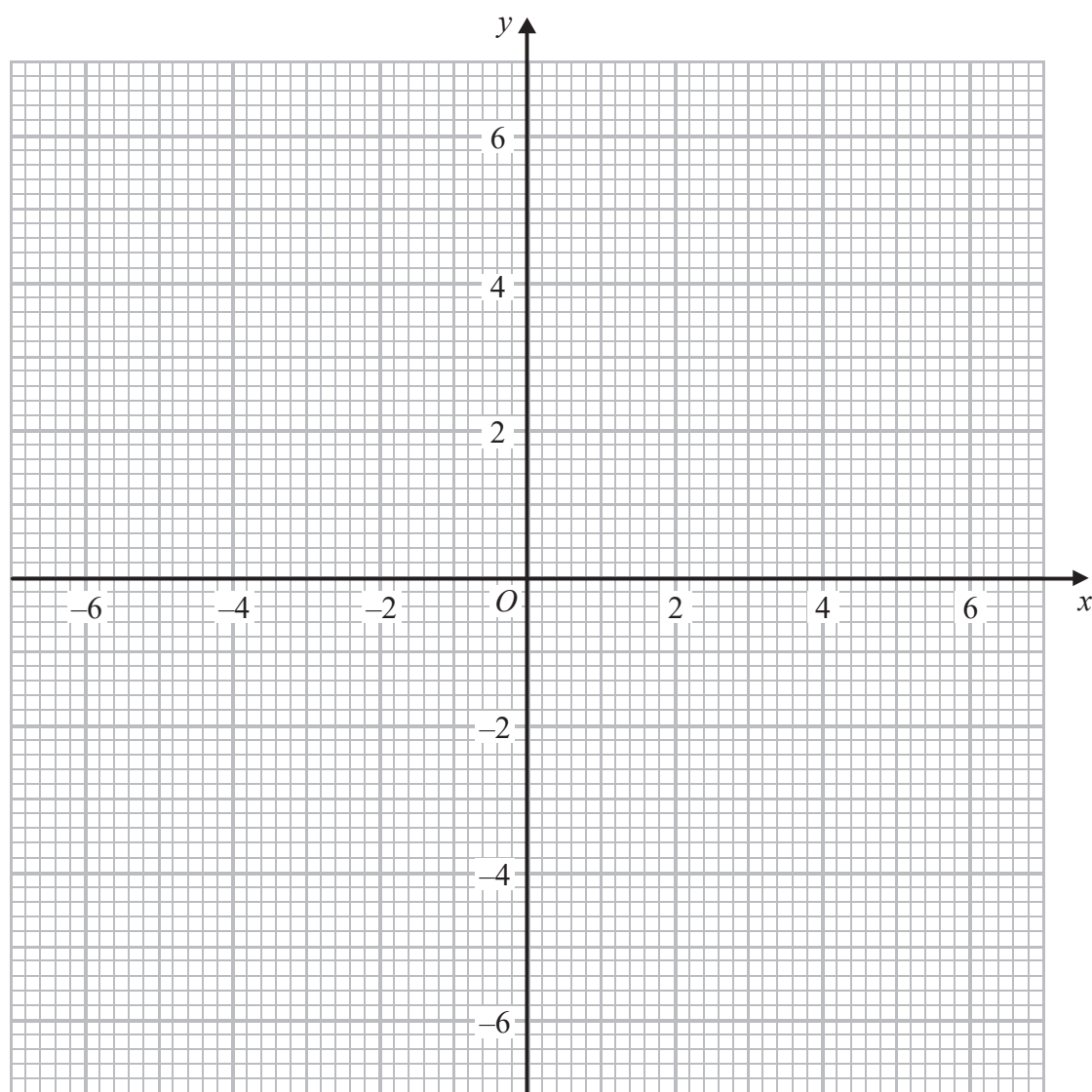
- (b) Calculate an estimate for the gradient of the graph at the point P .

.....
(3)

(Total for Question 20 is 5 marks)



16 (a) On the grid, draw the graph of $x^2 + y^2 = 12.25$



(2)

(b) Hence find estimates for the solutions of the simultaneous equations

$$x^2 + y^2 = 12.25$$

$$2x + y = 1$$

(3)

(Total for Question 16 is 5 marks)

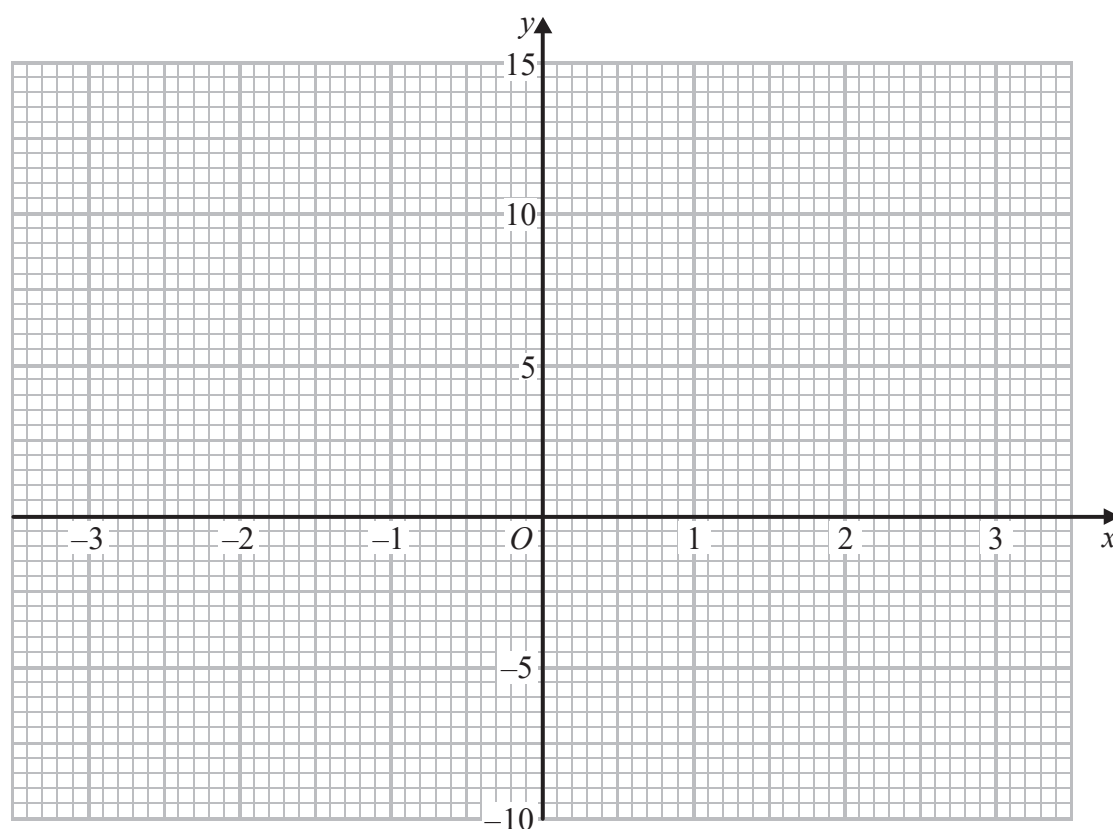


- 3 (a) Complete this table of values for $y = x^2 + x - 4$

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

(2)

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



(2)

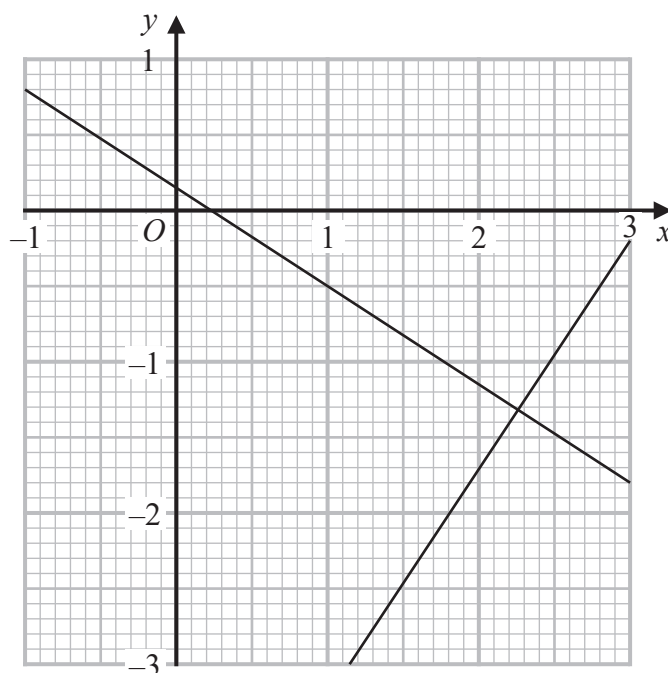
- (c) Use the graph to estimate a solution to $x^2 + x - 4 = 0$

(1)

(Total for Question 3 is 5 marks)



- 10 The graphs with equations $3y + 2x = \frac{1}{2}$ and $2y - 3x = -\frac{113}{12}$ have been drawn on the grid below.



Using the graphs, find estimates of the solutions of the simultaneous equations

$$3y + 2x = \frac{1}{2}$$

$$2y - 3x = -\frac{113}{12}$$

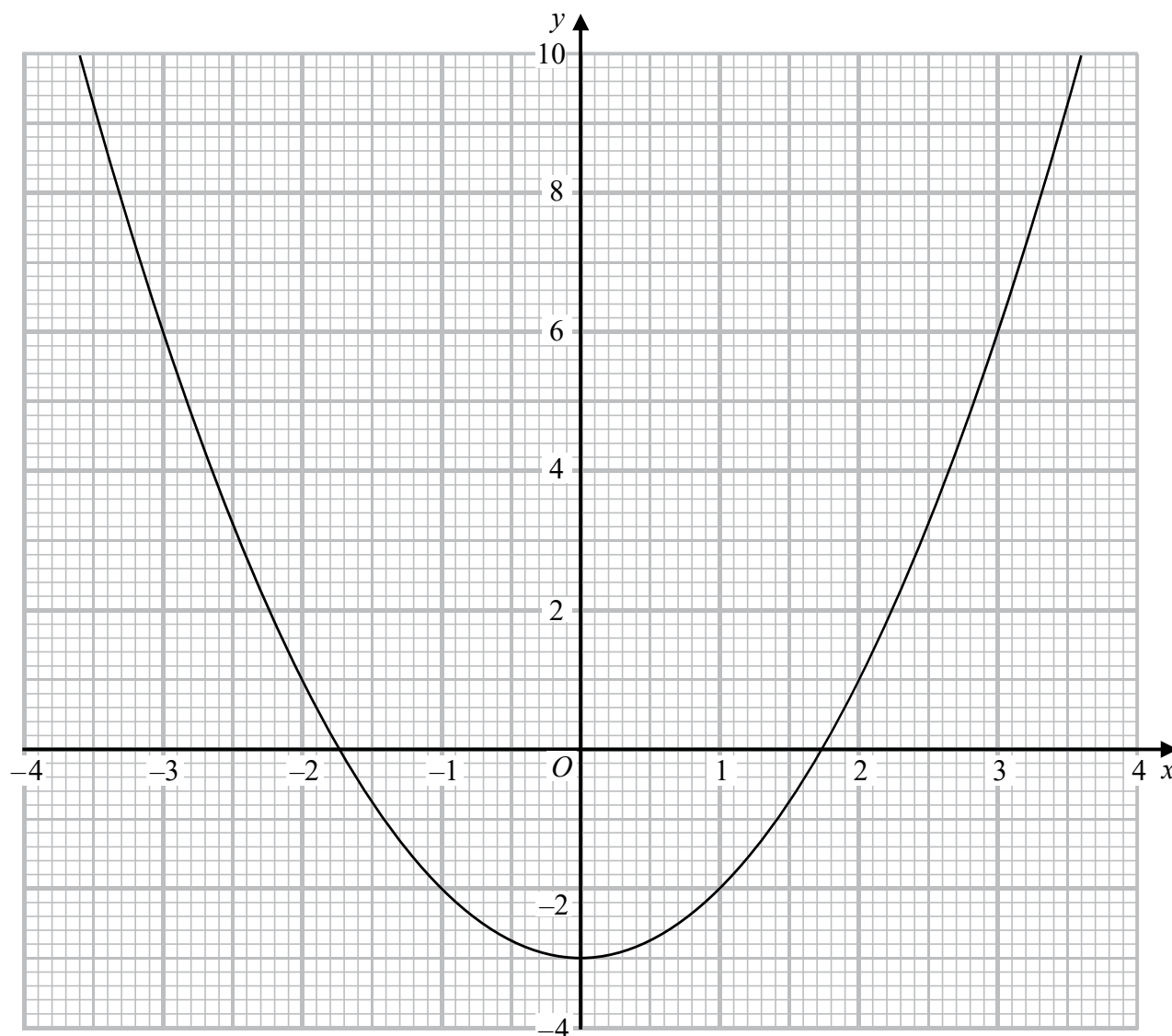
$x =$

$y =$

(Total for Question 10 is 2 marks)



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

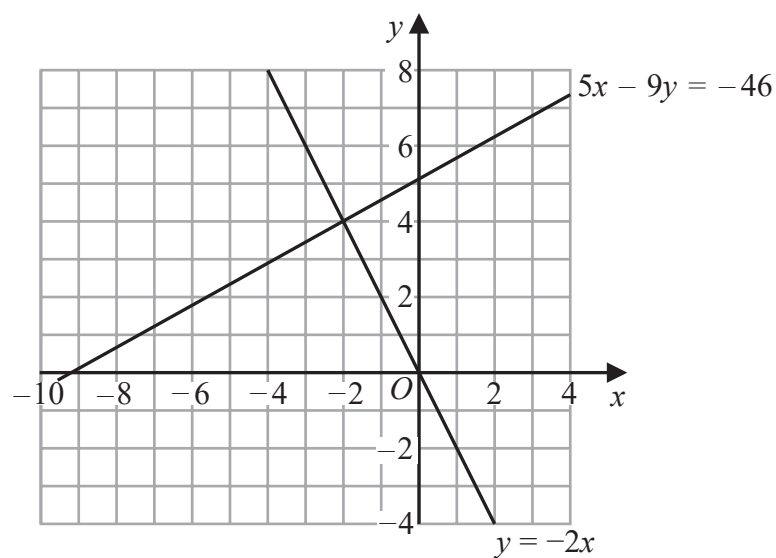


Use the graph to find estimates for the solutions to the equation $x^2 - 2x - 2 = 0$
You must show how you get your solutions.

(Total for Question 17 is 4 marks)



6



(a) Use these graphs to solve the simultaneous equations

$$\begin{aligned} 5x - 9y &= -46 \\ y &= -2x \end{aligned}$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

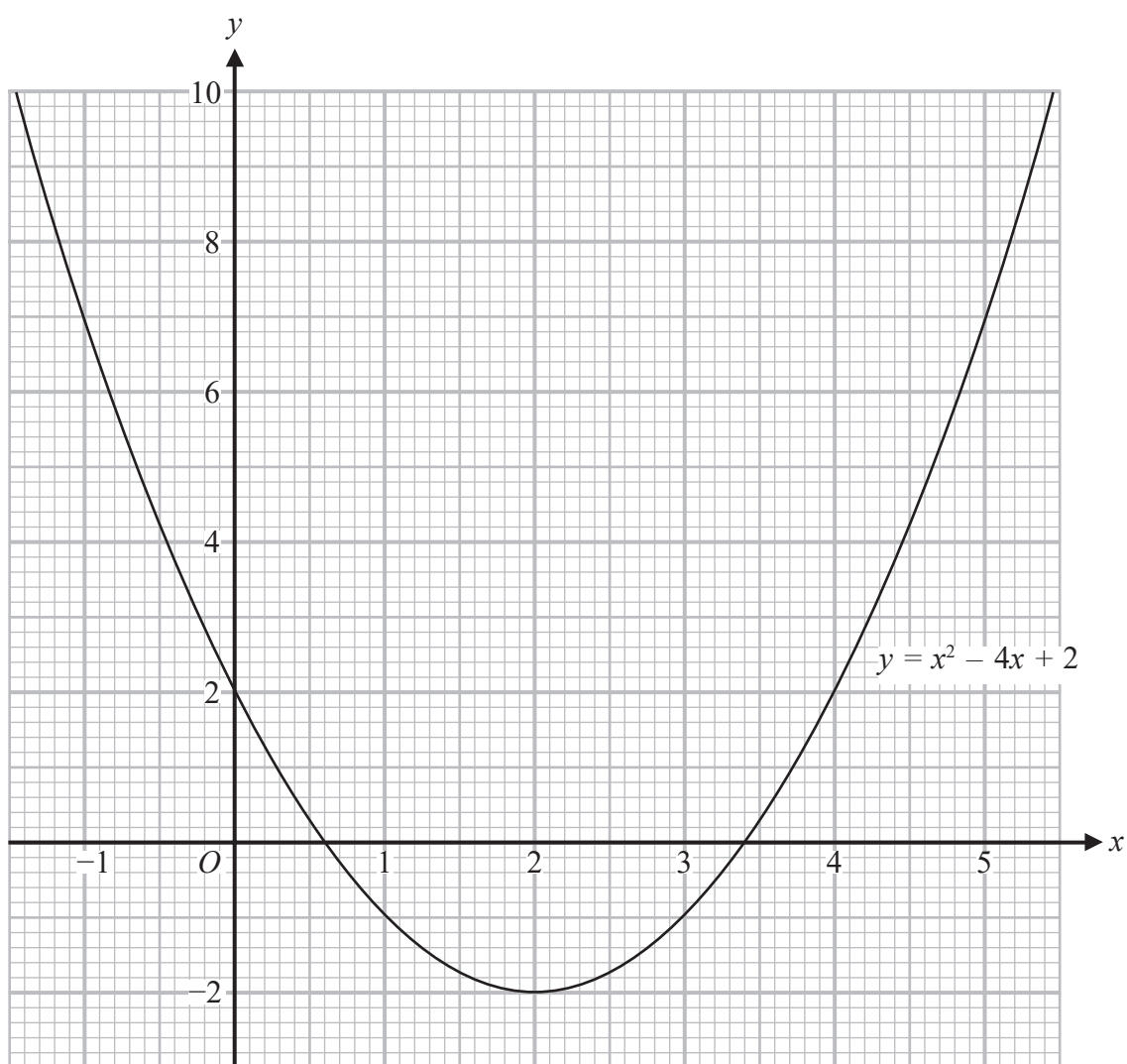
(1)

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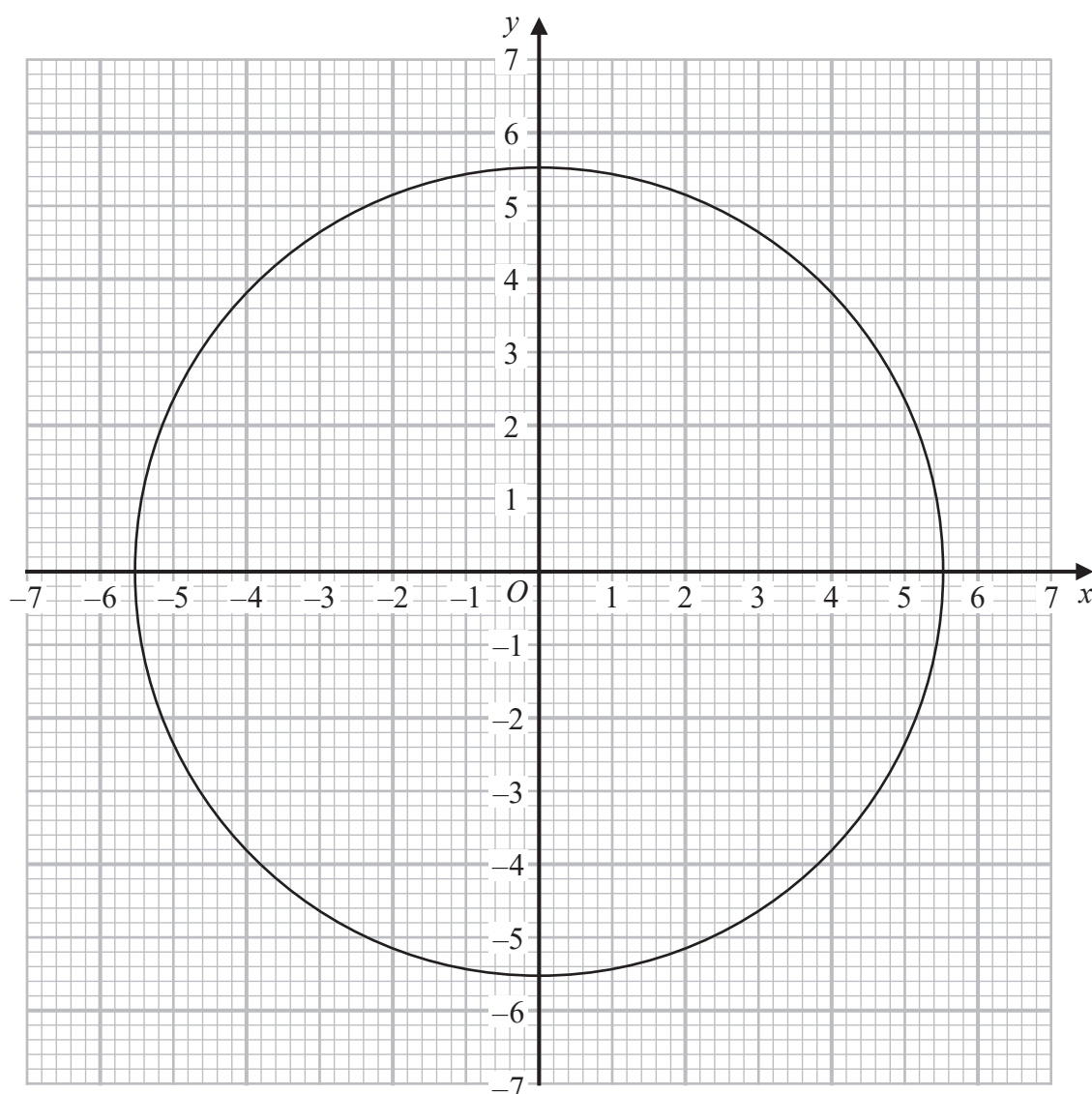
- (b) Use this graph to find estimates for the solutions of the quadratic equation $x^2 - 4x + 2 = 0$

.....
(2)

(Total for Question 6 is 3 marks)



20 The diagram shows the graph of $x^2 + y^2 = 30.25$



Use the graph to find estimates for the solutions of the simultaneous equations

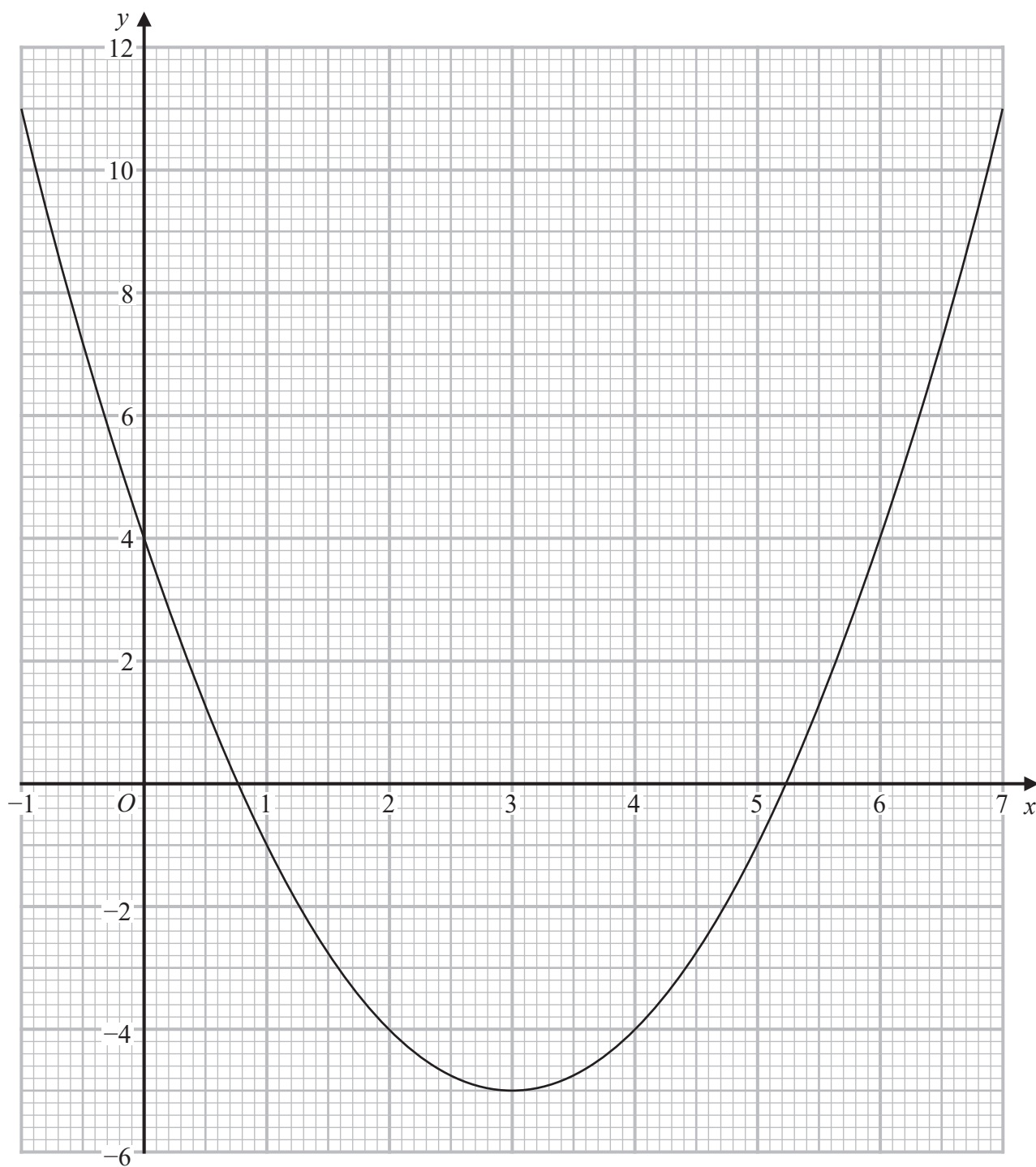
$$x^2 + y^2 = 30.25$$

$$y - 2x = 1$$

(Total for Question 20 is 3 marks)



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



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(a) Write down the y intercept of the graph of $y = x^2 - 6x + 4$

.....
(1)

(b) Write down the coordinates of the turning point of the graph of $y = x^2 - 6x + 4$

(..... , ...)
(1)

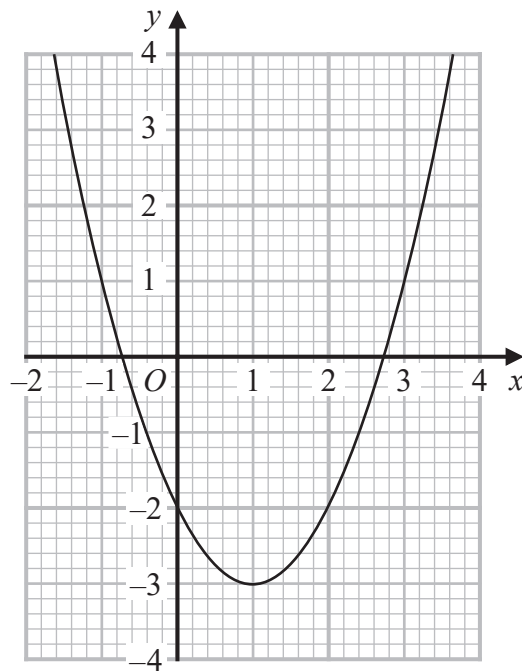
(c) Use the graph to find estimates for the roots of $x^2 - 6x + 4 = 0$

.....
(2)

(Total for Question 7 is 4 marks)



7 Here is the graph of $y = x^2 - 2x - 2$



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

(....., ...)
(1)

(b) Write down an estimate for one of the roots of $x^2 - 2x - 2 = 0$

.....
(1)

(Total for Question 7 is 2 marks)

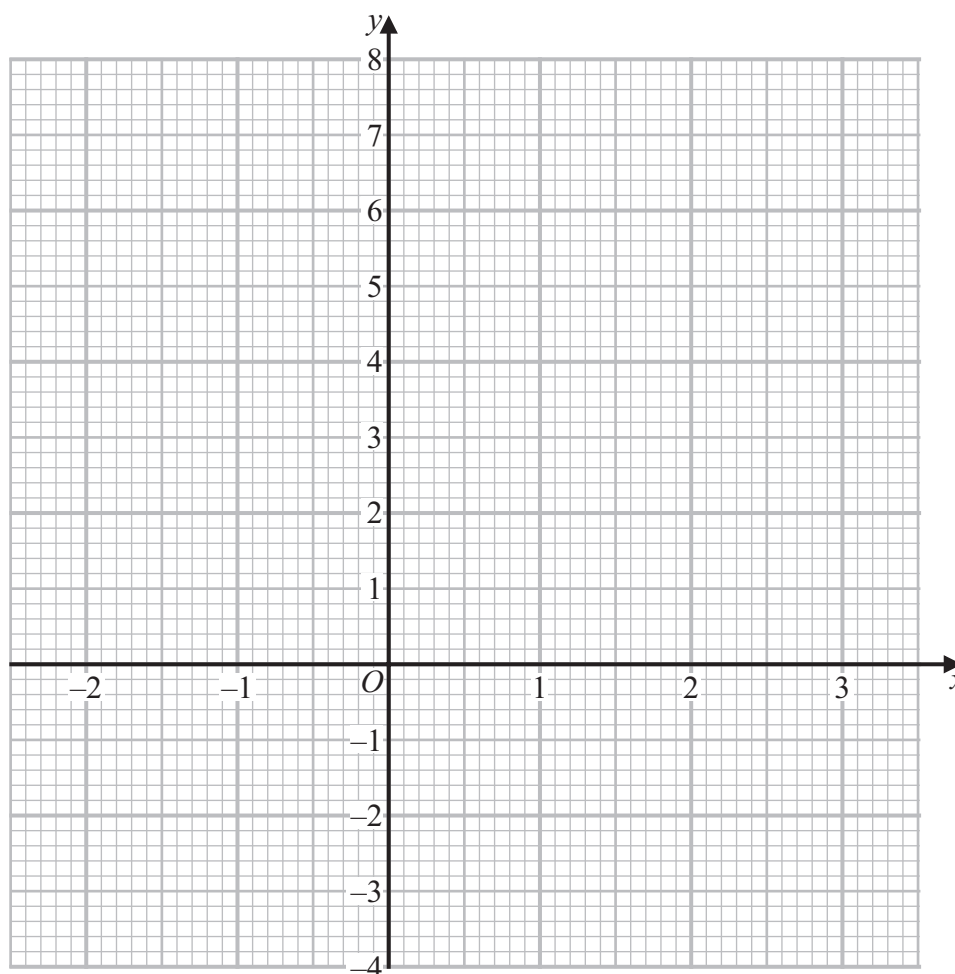


- 5 (a) Complete the table of values for $y = x^2 - x$

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

(2)

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



(2)

- (c) Use your graph to find estimates for the solutions of the equation $x^2 - x = 4$

(2)

(Total for Question 5 is 6 marks)

