



EXAM PAPERS PRACTICE

GCSE OCR Math J560

Solving Equations using Graphs

Answers

*"We will help you to
achieve A Star "*



Answer 1

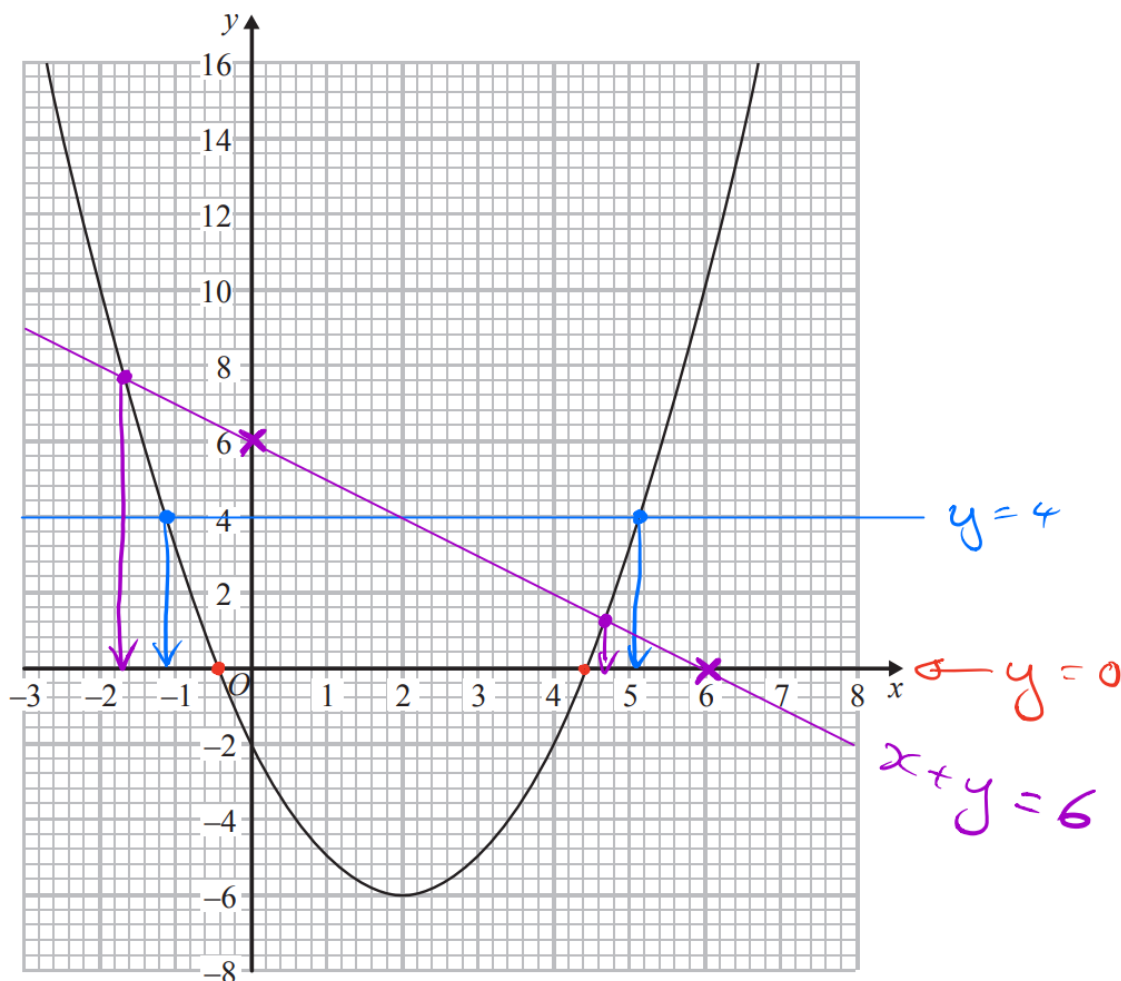
(b) On the grid, draw the graph of $y = x^2 - 3x + 2$ for values of x from -1 to 5





Answer 2

The diagram shows the graph of $y = x^2 - 4x - 2$



(a) Use the graph to find estimates for the solutions of

(i) $x^2 - 4x - 2 = 0$

$x = \underline{-0.4}$ or $\underline{4.4}$

(ii) $x^2 - 4x - 6 = 0$

$x^2 - 4x - 2 = 4$ → DRAW $y = 4$ $x = \underline{-1.1}$ or $\underline{5.1}$



Answer 3

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

x	-2	-1	0	1	2	3	4
y	11	5	1	-1	-1	1	5

$$x = -1: (-1)^2 - 3 \times (-1) + 1 = 1 + 3 + 1 = 5$$

$$x = 2: 2^2 - 3 \times 2 + 1 = 4 - 6 + 1 = -1$$

$$x = 4: 4^2 - 3 \times 4 + 1 = 16 - 12 + 1 = 5$$

Answer 4

(c) By drawing a suitable straight line on the grid, find estimates for the solutions of

$$x^2 - 3x + 1 = 3 \rightarrow \text{Draw } y = 3$$

$$\underline{\underline{-0.6}}, \underline{\underline{3.6}}$$

Answer 5

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.

GRADIENT OF CURVE = GRADIENT OF TANGENT

$$\text{GRAD} = \frac{\text{RISE}}{\text{RUN}} = \frac{6}{3} = \underline{\underline{2}}$$

GRADIENT

$m = \frac{\text{RISE}}{\text{RUN}}$

$m = \frac{y_2 - y_1}{x_2 - x_1}$

FOR TWO POINTS
 (x_1, y_1) AND (x_2, y_2)



Answer 6

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

Draw THIS \rightarrow $x^2 + y^2 = 12.25$
 $2x + y = 1$
 $y = -2x + 1$
 $x = 2, y = -2.9$
 $x = -1.2, y = 3.3$

EQUATION OF A STRAIGHT LINE

$$y = mx + c$$

GRADIENT y-INTERCEPT

Answer 7

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

$x=1: y = 1 - 3 + 2 = 0$

$x=2: y = 4 - 6 + 2 = 0$

$x=4: y = 16 - 12 + 2 = 6$

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

Answer 8

(c) Find estimates for the solutions of the equation $x^2 - 3x + 2 = 4$ — Draw $y = 4$

From GRAPH: $x = -0.5$ or $x = 3.5$



Answer 9

(b) Use the graph to find estimates for the values of x that satisfy the simultaneous equations

$$y = x^2 - 4x - 2$$

$$x + y = 6$$

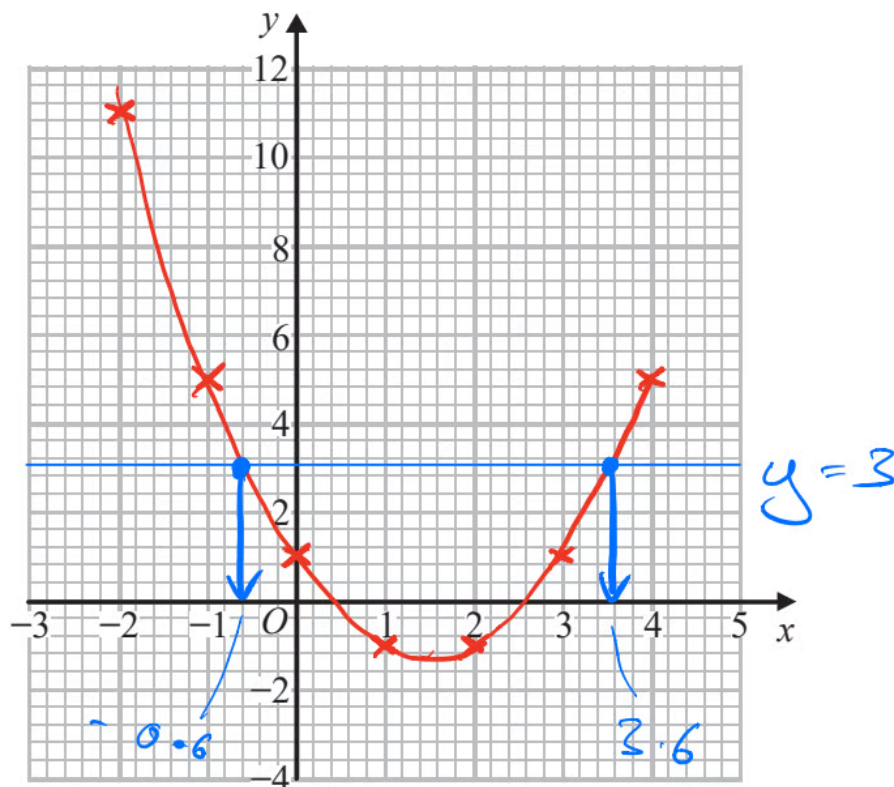
$$x=0: y=6$$

$$y=0: x=6$$

$$x = -1.7 \text{ or } 4.7$$

Answer 10

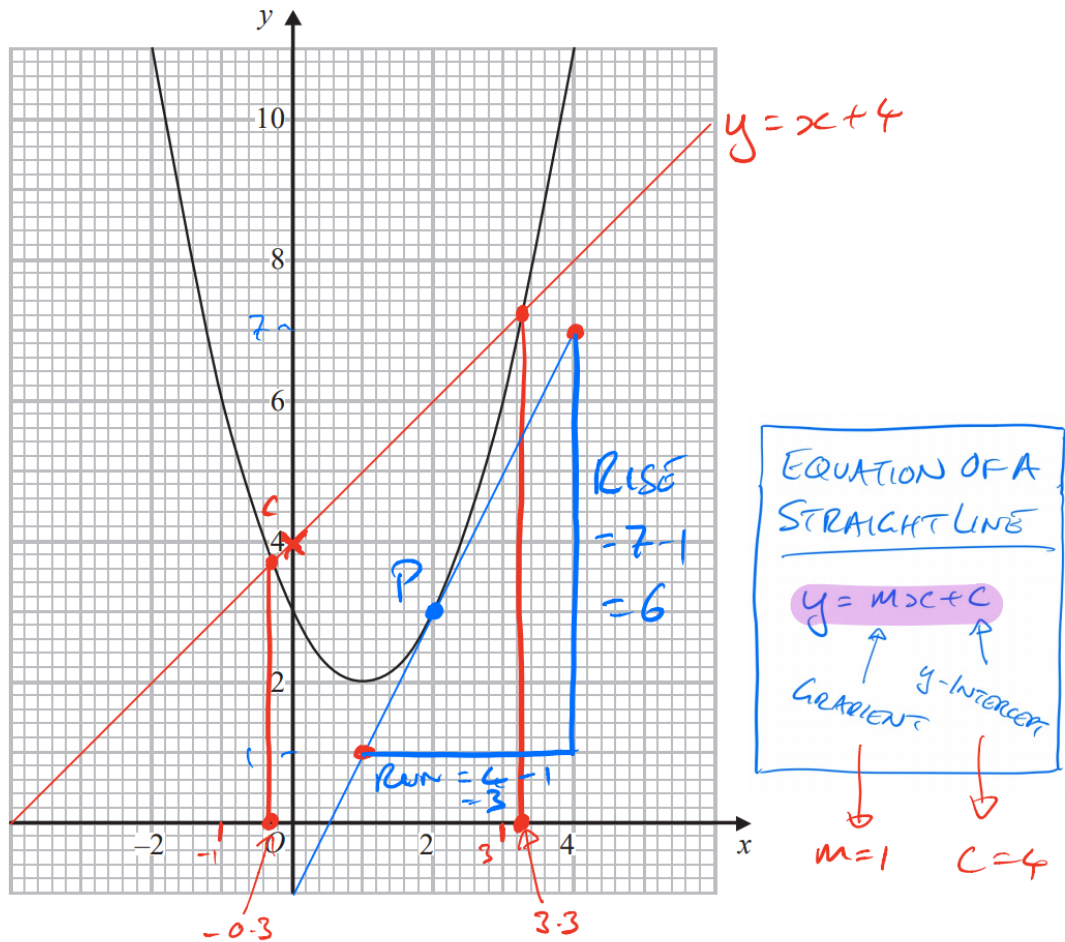
(b) On the grid, draw the graph of $y = x^2 - 3x + 1$ for values of x from -2 to 4





Answer 11

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



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

$$\begin{aligned} x^2 - 3x - 1 &= 0 \\ +x + 4 & \quad +x + 4 \\ \hline x^2 - 2x + 3 &= x + 4 \end{aligned}$$

DRAW $y = x + 4$

$x = -0.3$, $x = 3.3$



Answer 12

- (a) On the grid, draw the graph of $x^2 + y^2 = 12.25$ $\rightarrow r^2 = 12.25 \rightarrow r = \sqrt{12.25}$
 $= 3.5$

