1. (a) Complete the table of values for $y = \frac{1}{2}x - 1$

When $x = -1$: $y = \frac{1}{2}(-1) - 1$, $y = -\frac{1}{2} - 1$, $y = -\frac{3}{2}$

$x = 0$: $y = \frac{1}{2}(0) - 1$, $y = -1$

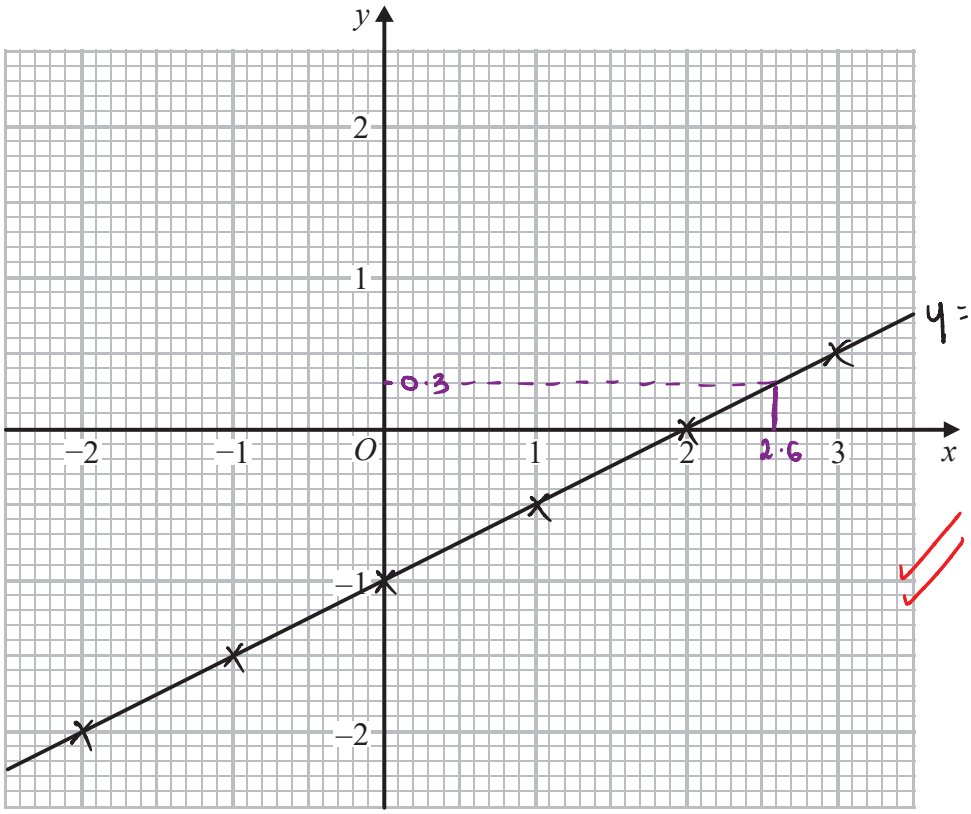
$x = 1$: $y = \frac{1}{2}(1) - 1$, $y = \frac{1}{2} - 1$, $y = -\frac{1}{2}$

$x = 3$: $y = \frac{1}{2}(3) - 1$, $y = \frac{3}{2} - 1$, $y = \frac{1}{2}$

x	−2	−1	0	1	2	3
y	−2	$-\frac{3}{2}$	−1	$-\frac{1}{2}$	0	$\frac{1}{2}$

(2)

(b) On the grid, draw the graph of $y = \frac{1}{2}x - 1$ for values of x from −2 to 3



(2)

(c) Use your graph to find the value of x when $y = 0.3$

$x =$ 2·6

(1)

(Total for Question is 5 marks)

2. On the grid below, draw the graph of $y = 1 - 4x$ for values of x from -3 to 3

Always draw up a table of values for these types of plotting questions so that you can easily see which points need to be plotted

x	-3	-2	-1	0	1	2	3
y	13	9	5	1	-3	-7	-11

e.g.

$y = 1 - 4x$

When $x = -3$

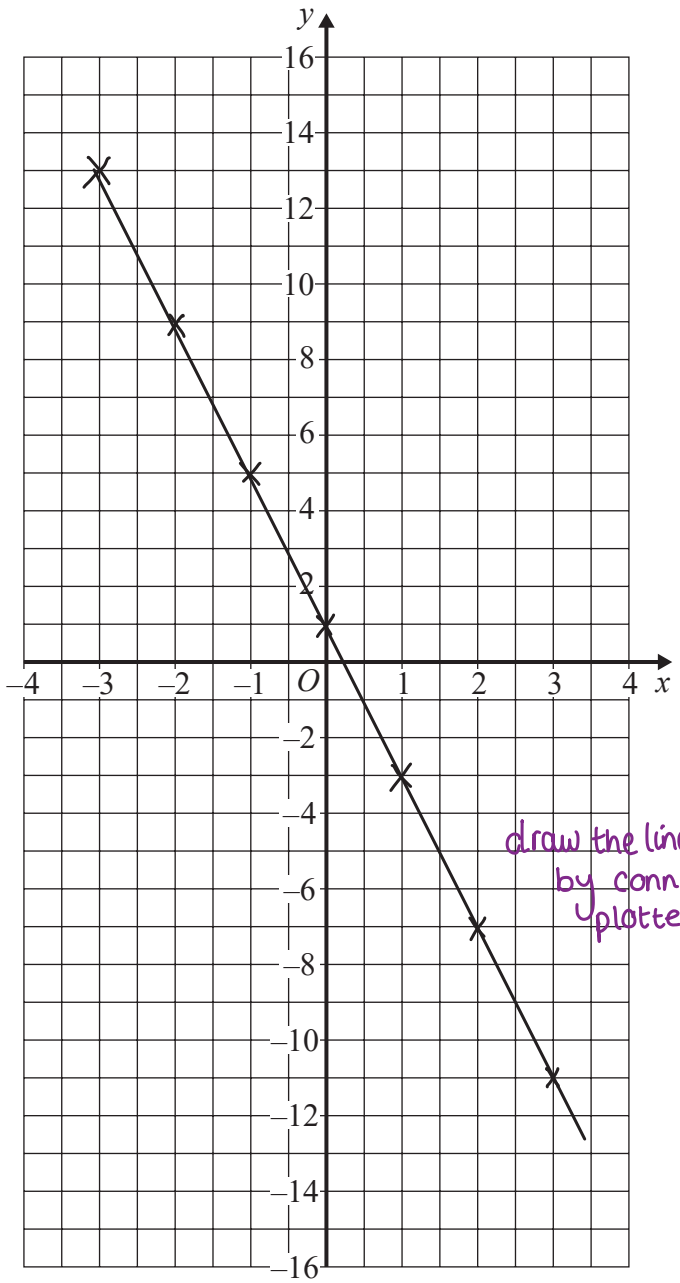
$y = 1 - (4x - 3)$

$= 1 - (-12)$

$= 1 + 12$

$= 13$

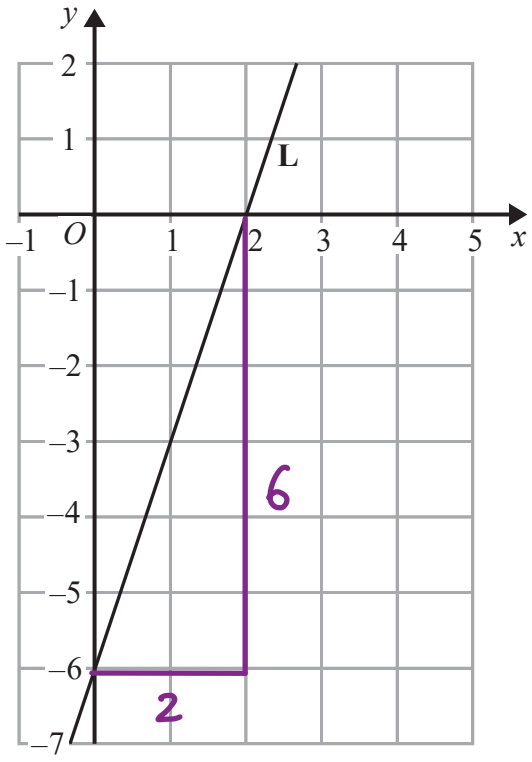
$(-3, 13)$ is a point on the graph



draw the line $y = 1 - 4x$ by connecting all plotted points.

(Total for Question is 3 marks)

3. The line **L** is shown on the grid.



Find an equation for **L**.

Equation of a straight line: $y = mx + c$

gradient

y-intercept when $x = 0$

$y = mx + c$

$y = 0m + c$

$y = c$

$m = \frac{\Delta y}{\Delta x} = \frac{6}{2} = 3$ (1)

$y = 3x + c$ (1)

$c =$ y-intercept $= -6$

Where L crosses the y axis

$y = 3x - 6$ (1)

(Total for Question is 3 marks)

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

x	–3	–2	–1	0	1	2	3
y	6	0	−4	− 6	−6	− 4	0

Substitute each x value into $y=x^2-x-6$ to obtain the corresponding y value (same column in table)

e.g. when $x=-2$ $y = x^2-x-6$
$= (-2)^2-(-2)-6$
$= 4+2-6$
$y = 0$

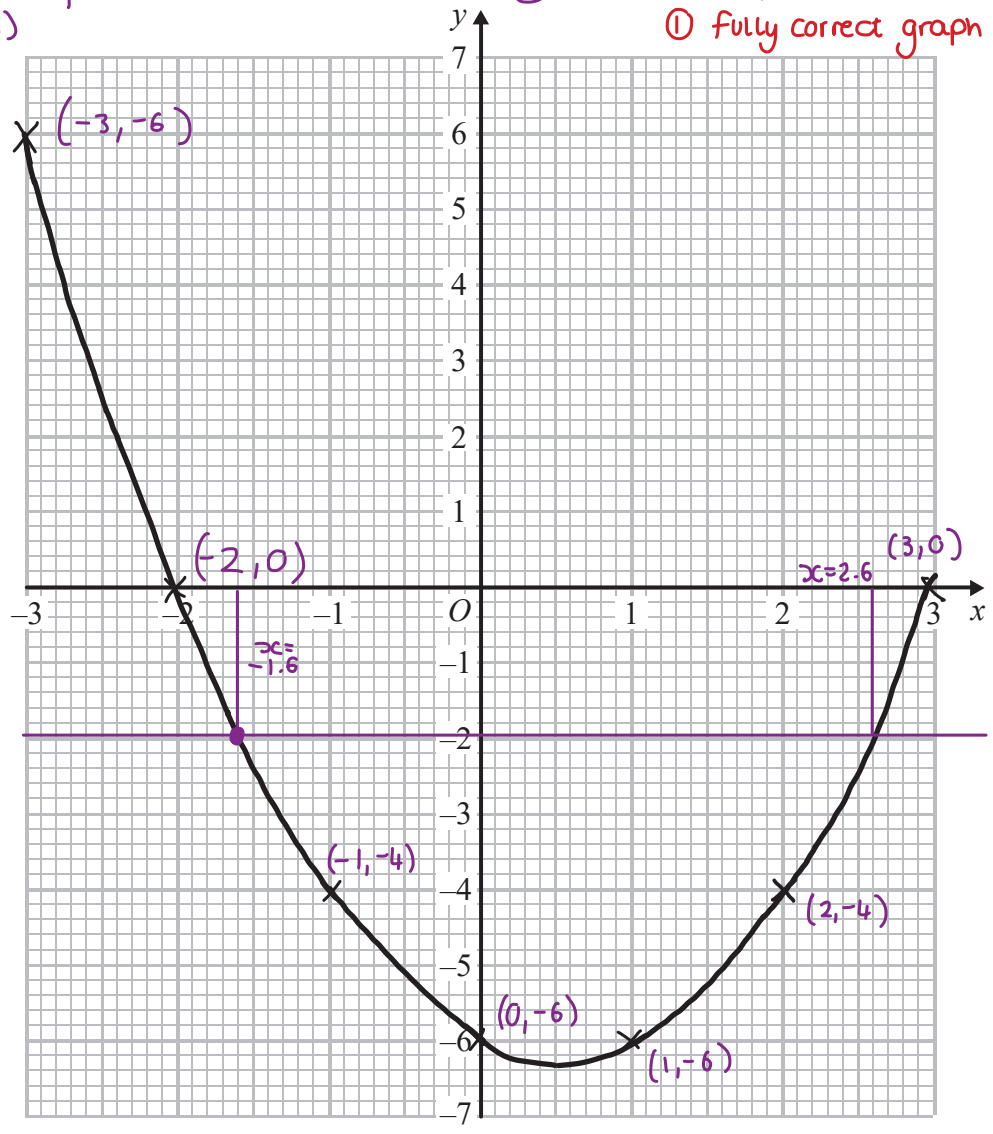
(2)

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

(2)

Plot each point from the table in @ (x, y)

① ⩾5 points plotted correctly
① fully correct graph



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

$y = x^2 - x - 6$

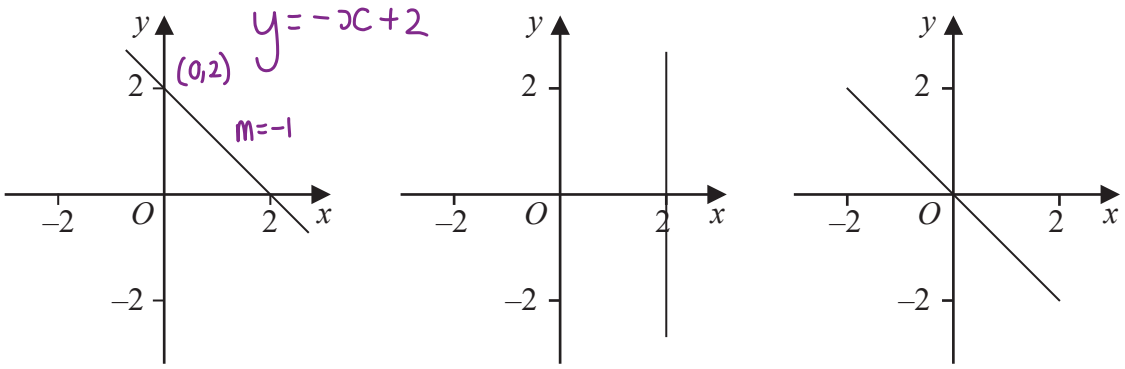
- Draw the line $y = -2$ onto the graph (1)
- Find the x values of the 2 points at which the line $y = -2$ and the curve $y = x^2 - x - 6$ cross

-1.6 and 2.6 (1)

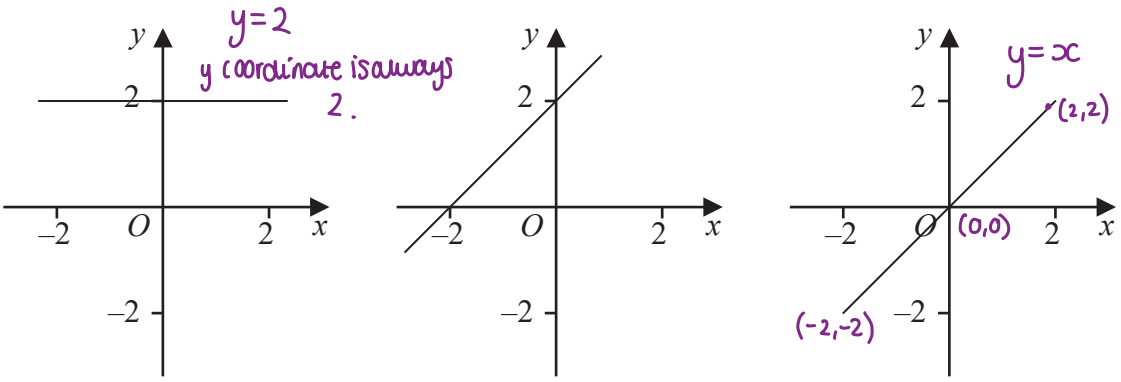
(2)

(Total for Question is 6 marks)

5. Here are six straight line graphs.



Graph **A** Graph **B** Graph **C**



Graph **D** Graph **E** Graph **F**

Match each equation in the table to the correct graph.
Write the letter of the graph in the table.

Equation	Graph
$y = 2$	D
$y = x$	F
$x + y = 2$	A

For every x value, the y coordinate is 2 (x,2) →

← x and y values are always equal. e.g. (0,0) (1,1) (−2,−2)

Rearrange into a more recognisable form: →

$x + y = 2$
$y = 2 - x$
$y = -x + 2$ ← y intercept (0,2)
↑ gradient of −1

(Total for Question is 2 marks)

6. (a) Complete the table of values for $y = 4x - 6$

x	−1	0	1	2	3	4
y	-10	-6	−2	2	6	10

when $x = -1$ $y = 4(-1) - 6$ $y = -4 - 6$ $y = -10$

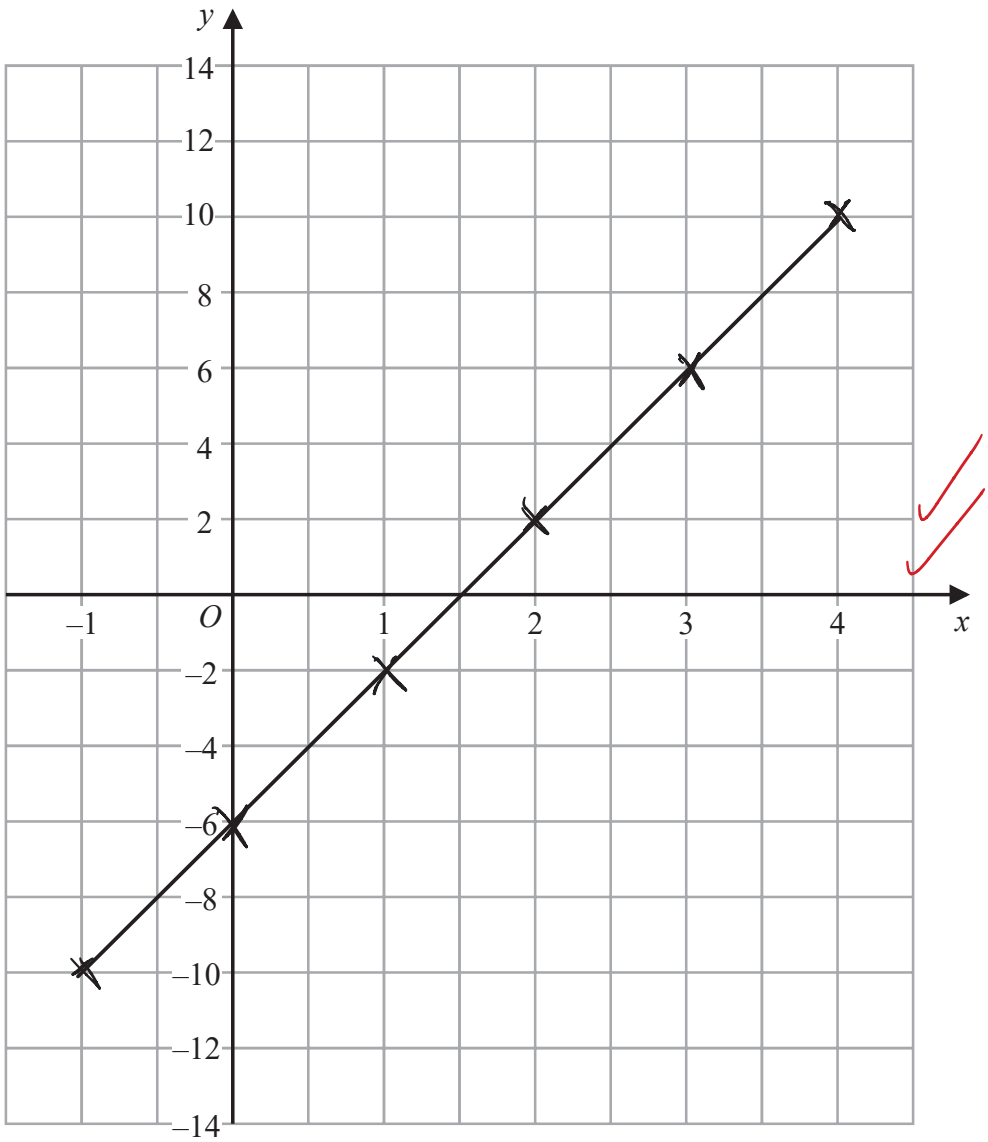
when $x = 2$ $y = 4(2) - 6$ $y = 2$

when $x = 0$ $y = 4(0) - 6$ $y = -6$

when $x = 3$ $y = 4(3) - 6$ $y = 6$

(2)

(b) On the grid, draw the graph of $y = 4x - 6$ for values of x from −1 to 4



(2)

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

$y = (4)^2 - 2(4) + 2 = 10$

x	–2	–1	0	1	2	3	4
y	10	5	2	1	2	5	10

(2)

$y = (-2)^2 - 2(-2) + 2 = 10$

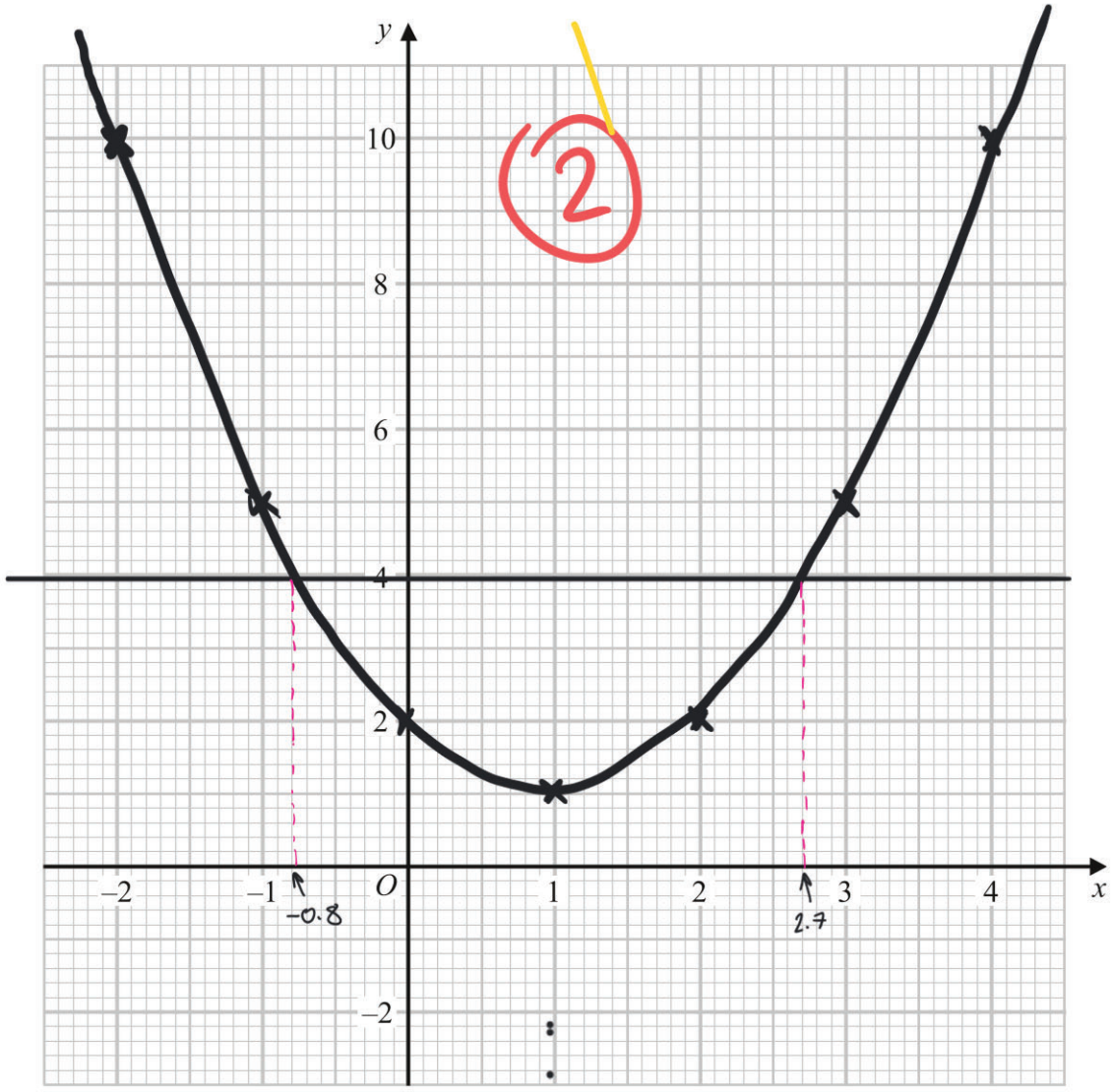
$y = (-1)^2 - 2(-1) + 2 = 5$

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

$y = (2)^2 - 2(2) + 2 = 2$

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

(2)



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

$y = x^2 - 2x + 2$

$y = 4$

Plot $y = 4$ and see where it intersects $y = x^2 - 2x + 2$

$x = -0.8$ $x = 2.7$

(2)