

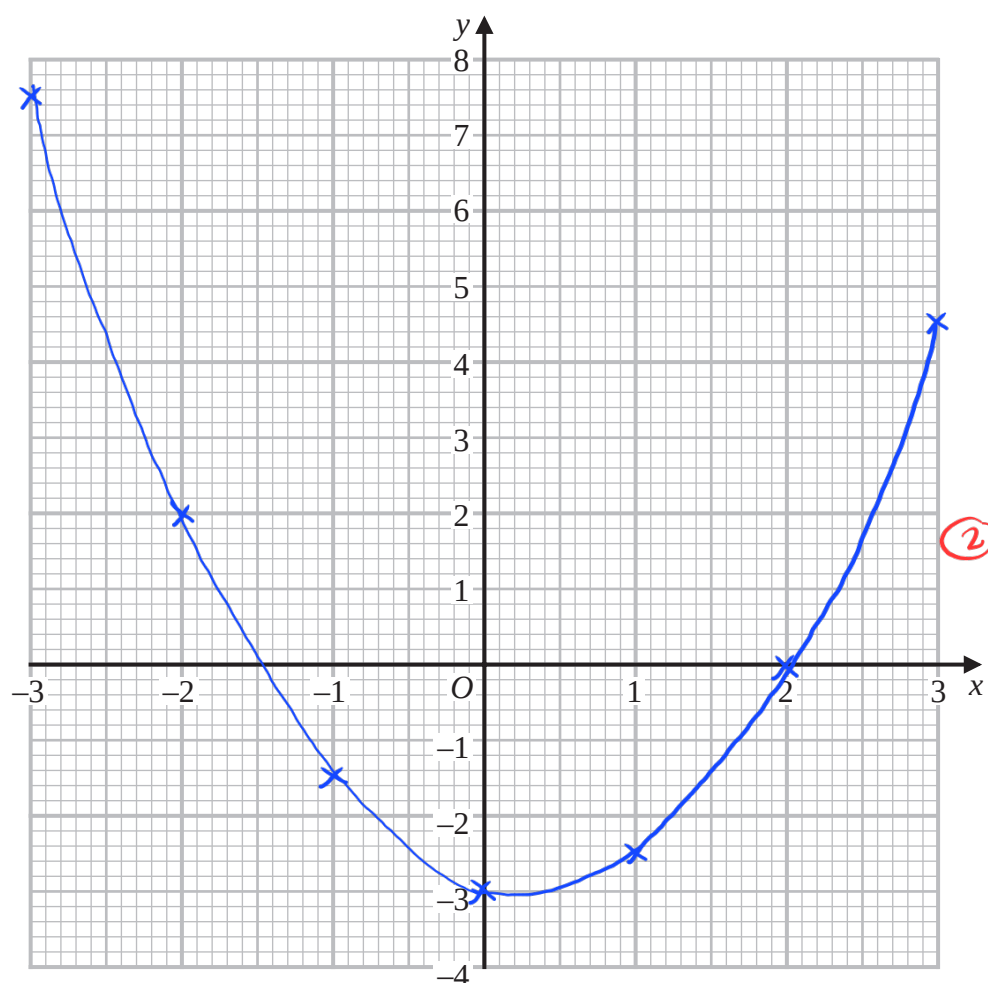
1. (a) Complete the table of values for $y = x^2 - \frac{x}{2} - 3$

x	-3	-2	-1	0	1	2	3
y	7.5	2	-1.5	-3	-2.5	0	4.5

(2)

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

(2)



(2)

(2)

(Total for Question 1 is 4 marks)

- 2 The curve **C** has equation $y = 4(x - 1)^2 - a$ where $a > 4$

Using the axes below, sketch the curve **C**.
On your sketch show clearly, in terms of a ,

- (i) the coordinates of any points of intersection of **C** with the coordinate axes,
(ii) the coordinates of the turning point.

when $x = 1$, $y = -a$ ① — turning point

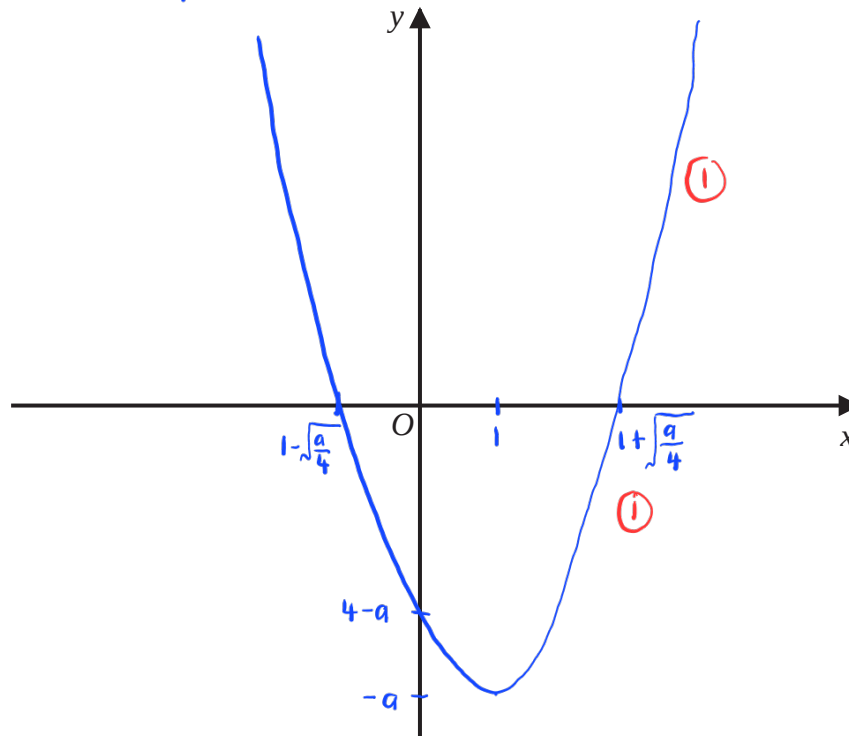
when $x = 0$, $y = 4 - a$ ① — y-intercept

when $y = 0$, $0 = 4(x - 1)^2 - a$ — x-intercept

$$(x - 1)^2 = \frac{a}{4}$$

$$(x - 1) = \pm \sqrt{\frac{a}{4}}$$

$$x = 1 \pm \sqrt{\frac{a}{4}}$$



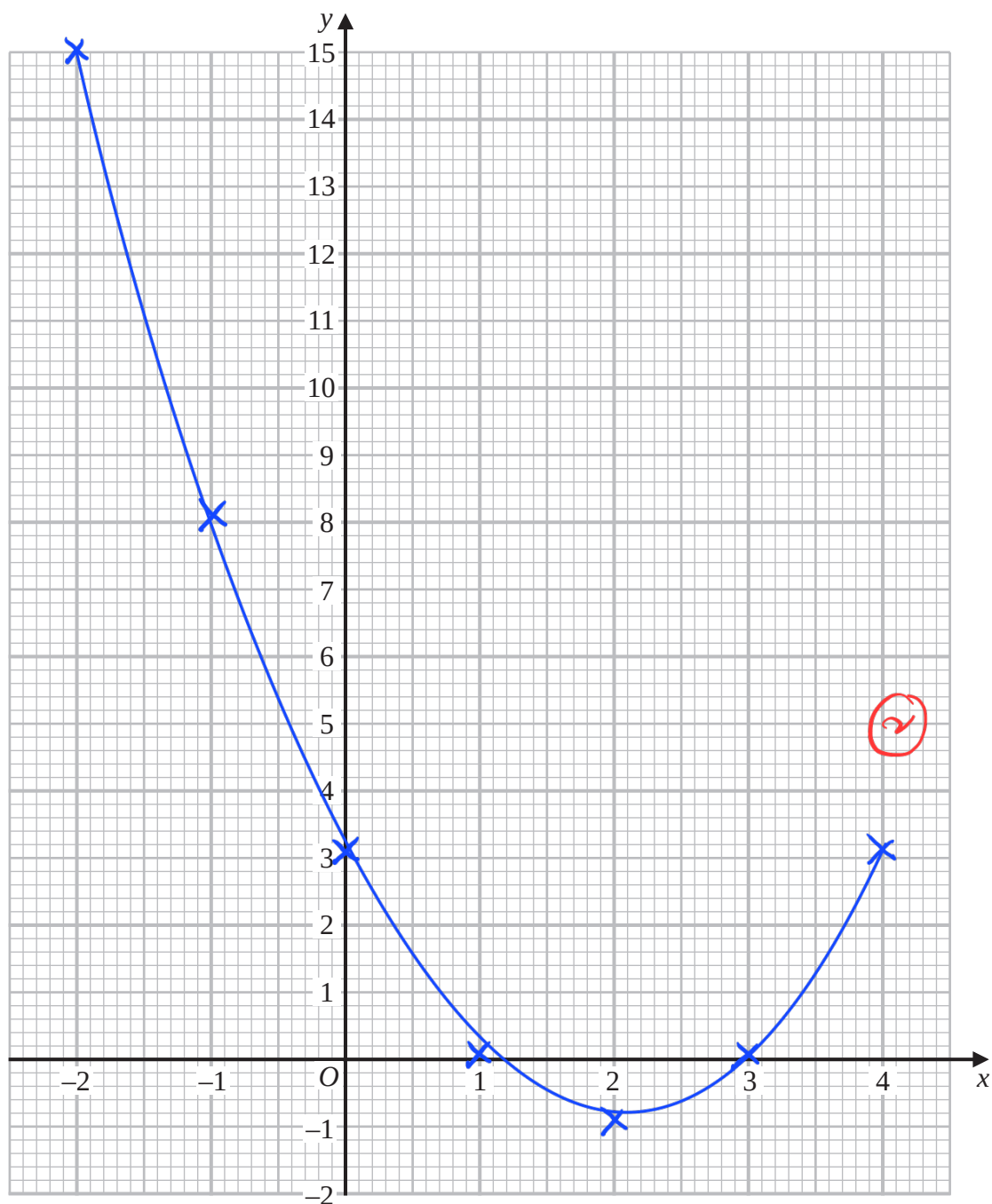
(Total for Question 2 is 4 marks)

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

x	-2	-1	0	1	2	3	4
y	15	8	3	0	-1	0	3

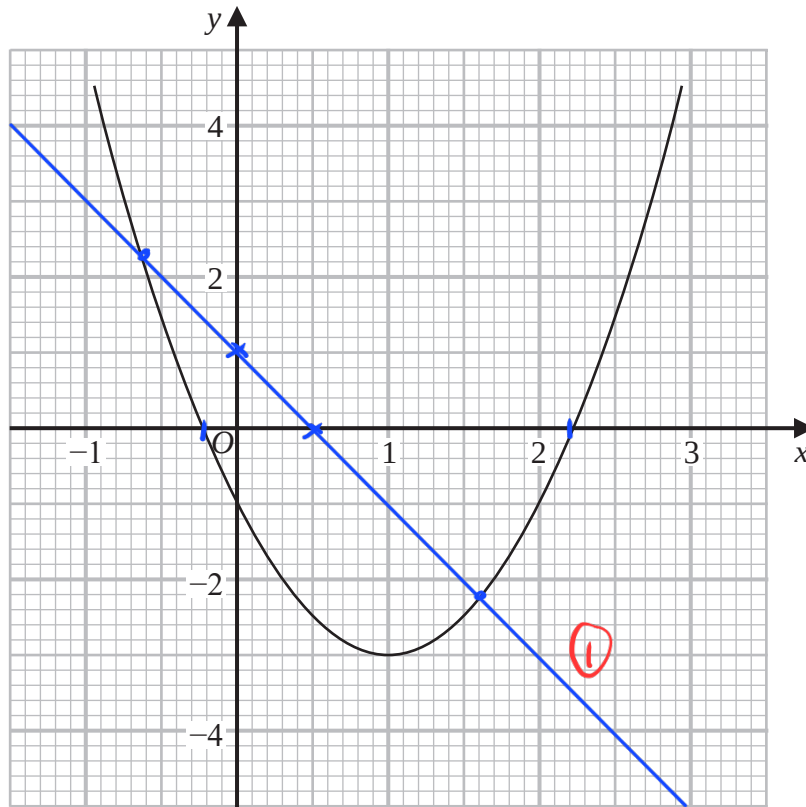
(2)

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



(Total for Question 3 is 4 marks)

4 Part of the graph of $y = 2x^2 - 4x - 1$ is shown on the grid.



- (a) Use the graph to find estimates for the solutions of the equation $2x^2 - 4x - 1 = 0$. Give your solutions correct to one decimal place.

(2)

-0.2 and 2.2

(2)

- (b) By drawing a suitable straight line on the grid, find estimates for the solutions of the equation $x^2 - x - 1 = 0$
Show your working clearly.
Give your solutions correct to one decimal place.

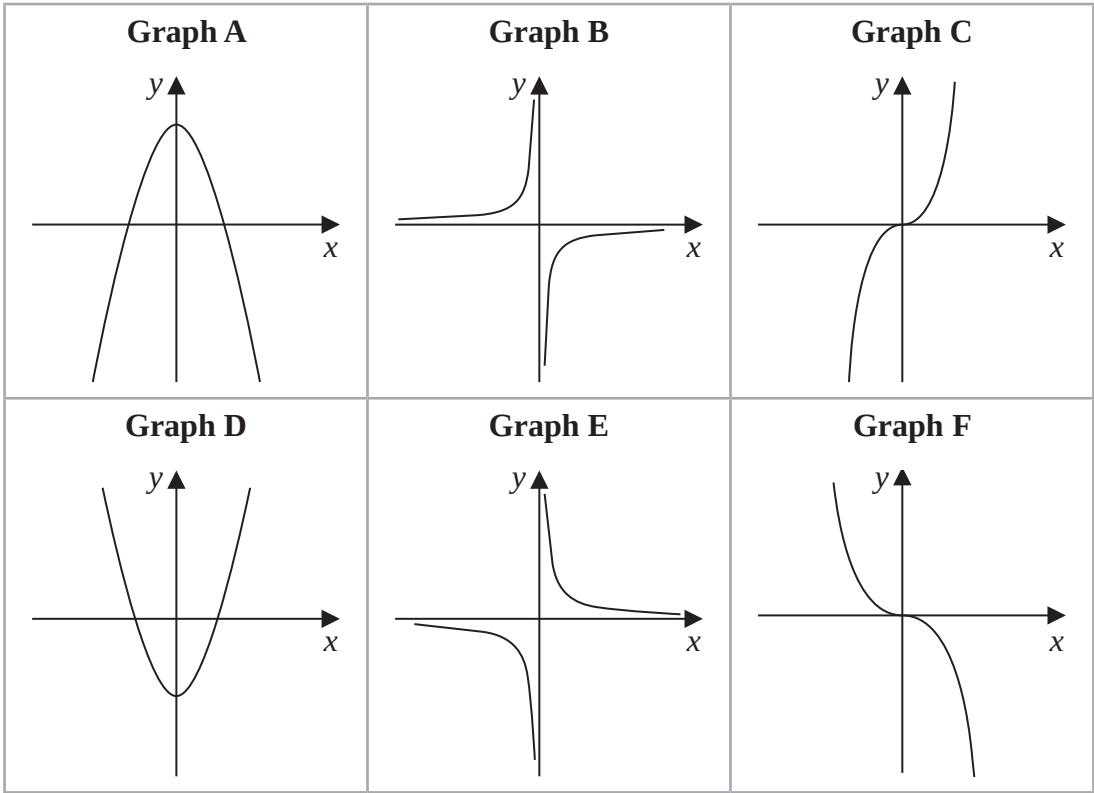
$$\begin{aligned}
 x^2 - 2x - 1 &= 0 \\
 2x^2 - 2x - 2 &= 0 \quad \times 2 \\
 2x^2 - 2x(-2x) - 2(+1) &= -2x + 1 \\
 2x^2 - 4x - 1 &= -2x + 1 \\
 y &= -2x + 1 \quad \textcircled{1}
 \end{aligned}$$

-0.6 and 1.6 ①

(3)

(Total for Question 4 is 5 marks)

5 Here are six graphs.



Complete the table below with the letter of the graph that could represent each given equation.
Write your answers on the dotted lines.

Equation	Graph
$y = -\frac{2}{x}$	B
$y = 5 - x^2$	A 3
$y = -2x^3$	F

(Total for Question 5 is 3 marks)

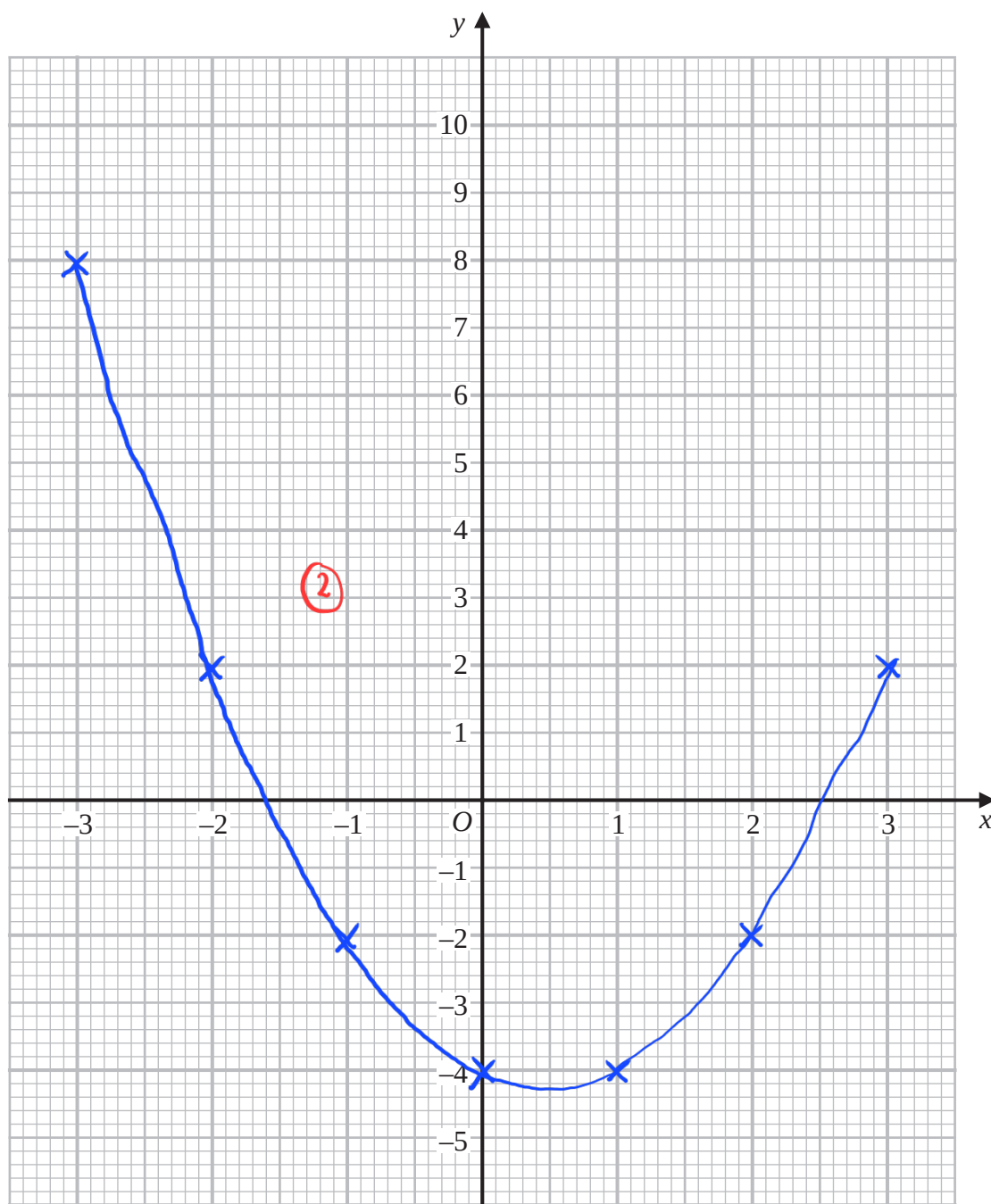
- 6 (a) Complete the table of values for $y = x^2 - x - 4$

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

(2)

(2)

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



(2)

(Total for Question 6 is 4 marks)