

Name: _____

Exam Style Questions

Drawing Quadratics



Equipment needed: Ruler, Pencil, Calculator and Pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 264



Answers and Video Solutions

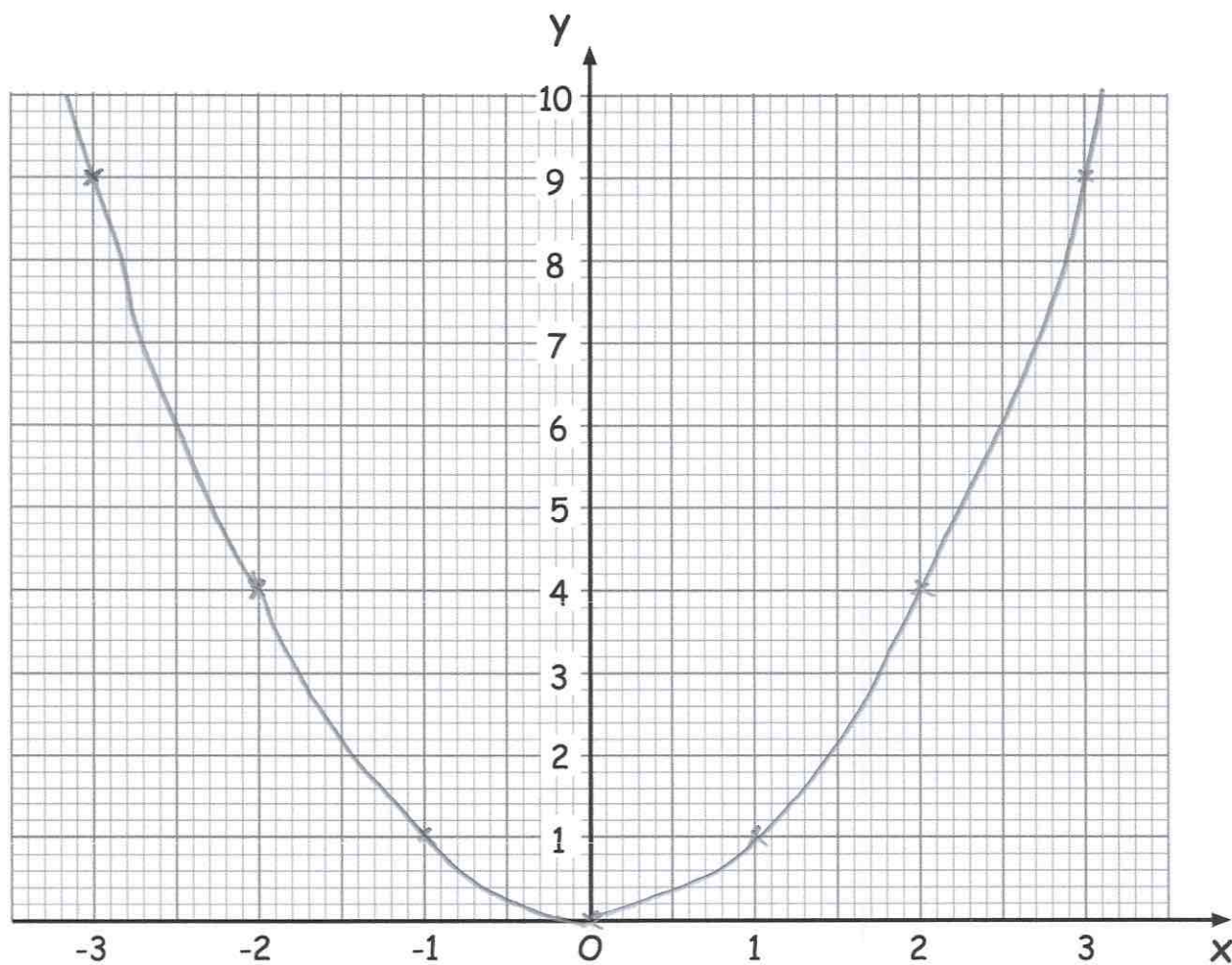


1. The table shows information about some points that lie on the graph $y = x^2$



x	-3	-2	-1	0	1	2	3
y	9	4	1	0	1	4	9

Draw the graph of $y = x^2$ for the values of x from -3 to 3



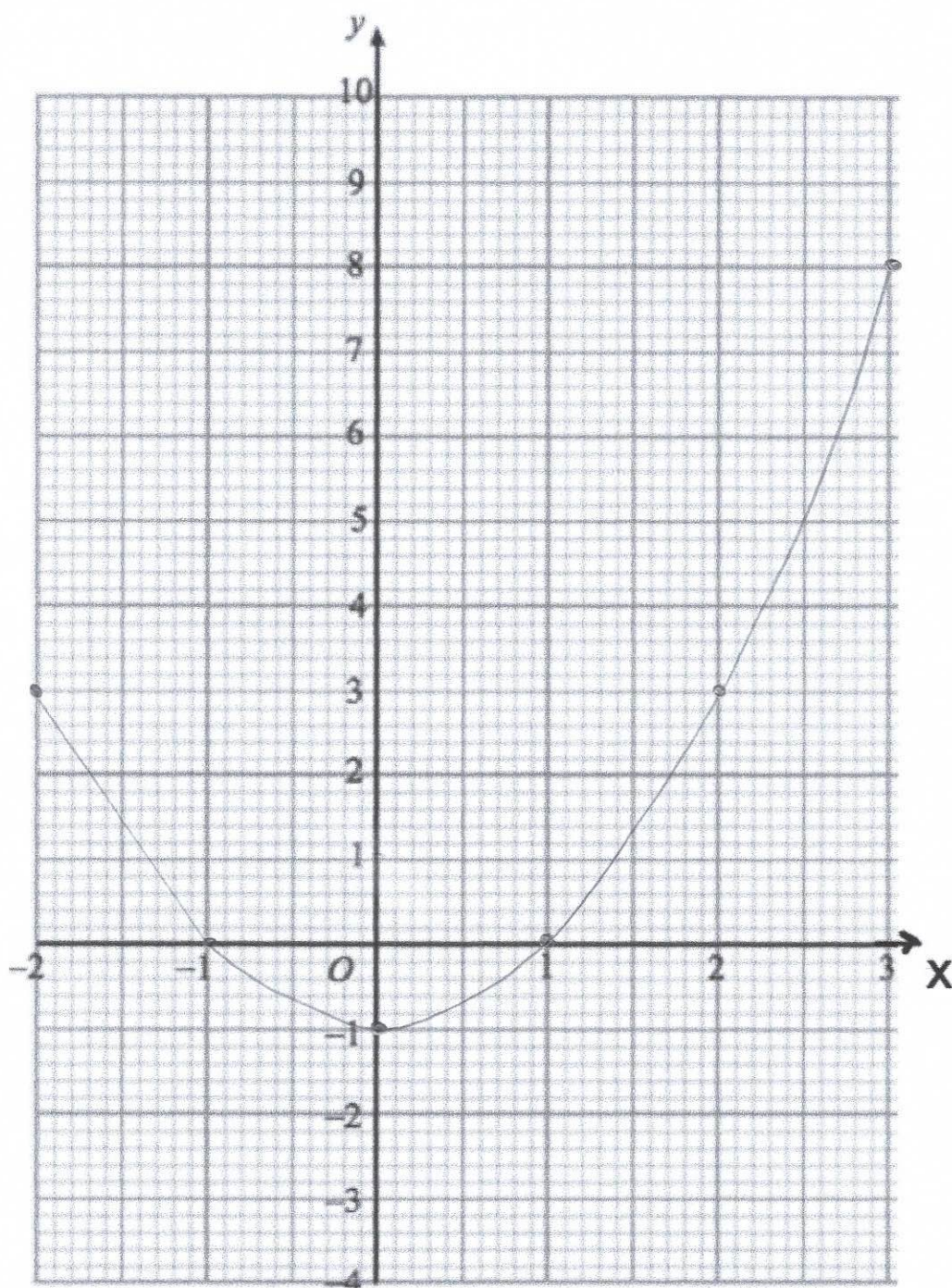
(2)

2

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

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

(2)

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

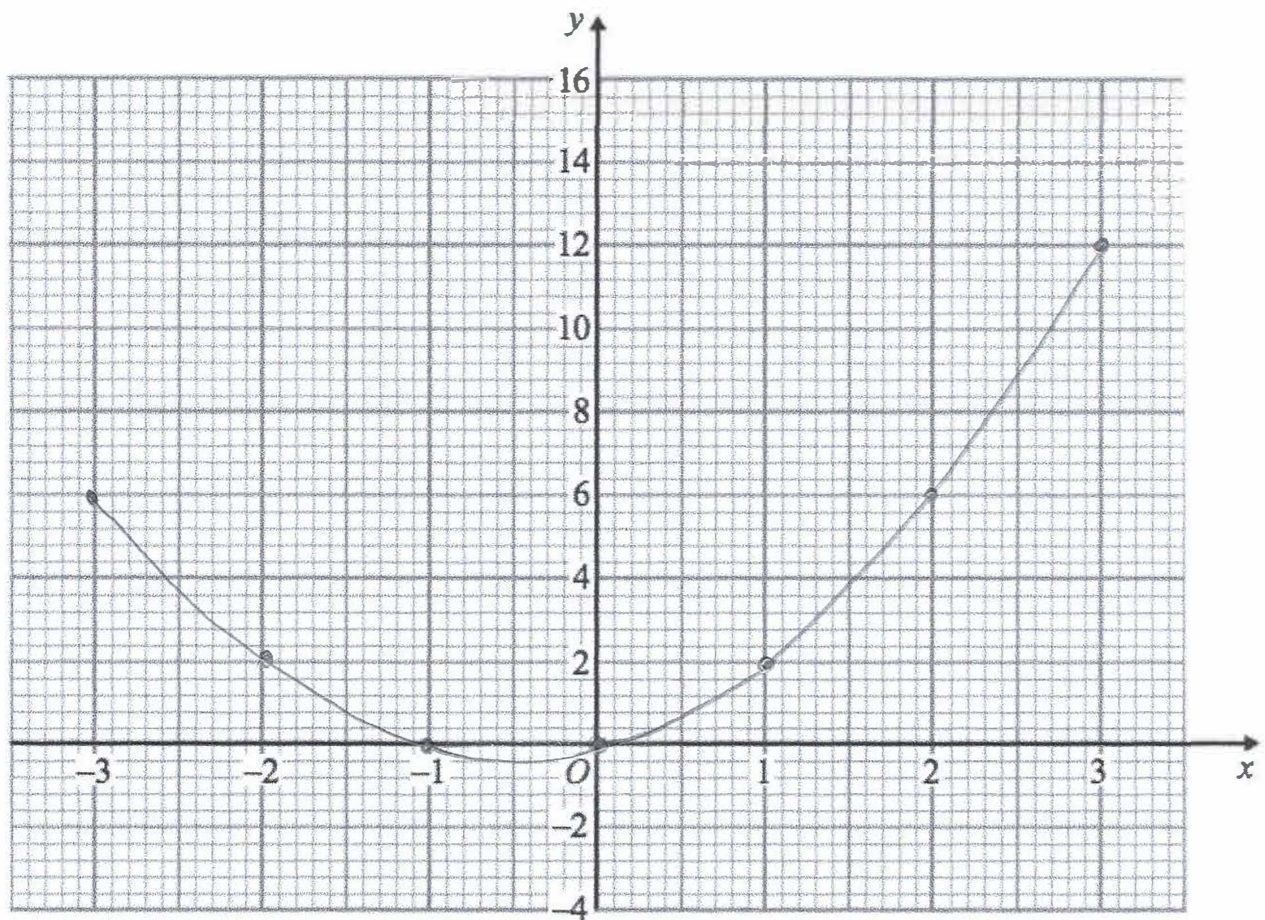
(2)

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

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

(2)

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



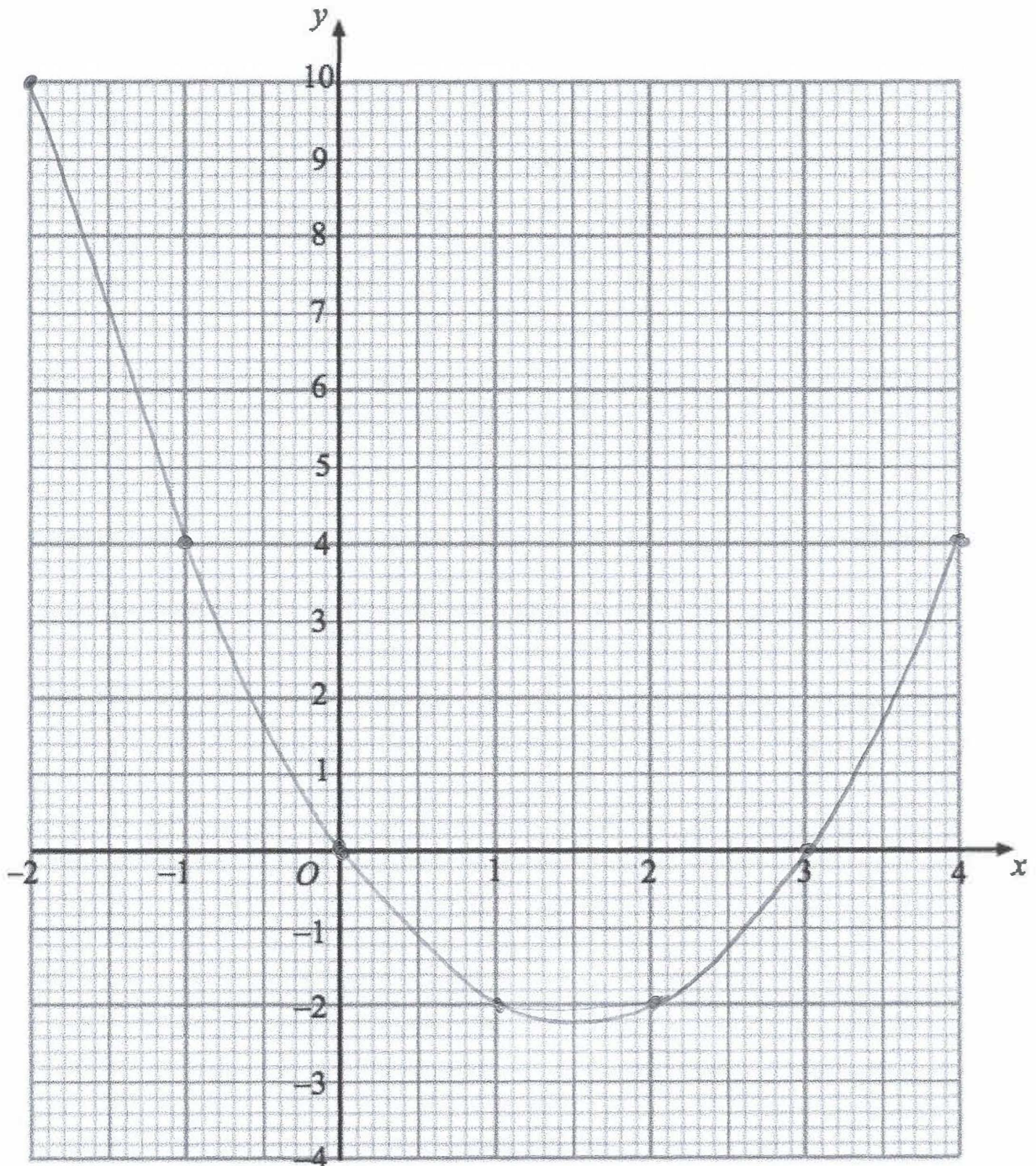
(2)

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

x	-2	-1	0	1	2	3	4
y	10	4	0	-2	-2	0	4

(2)

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

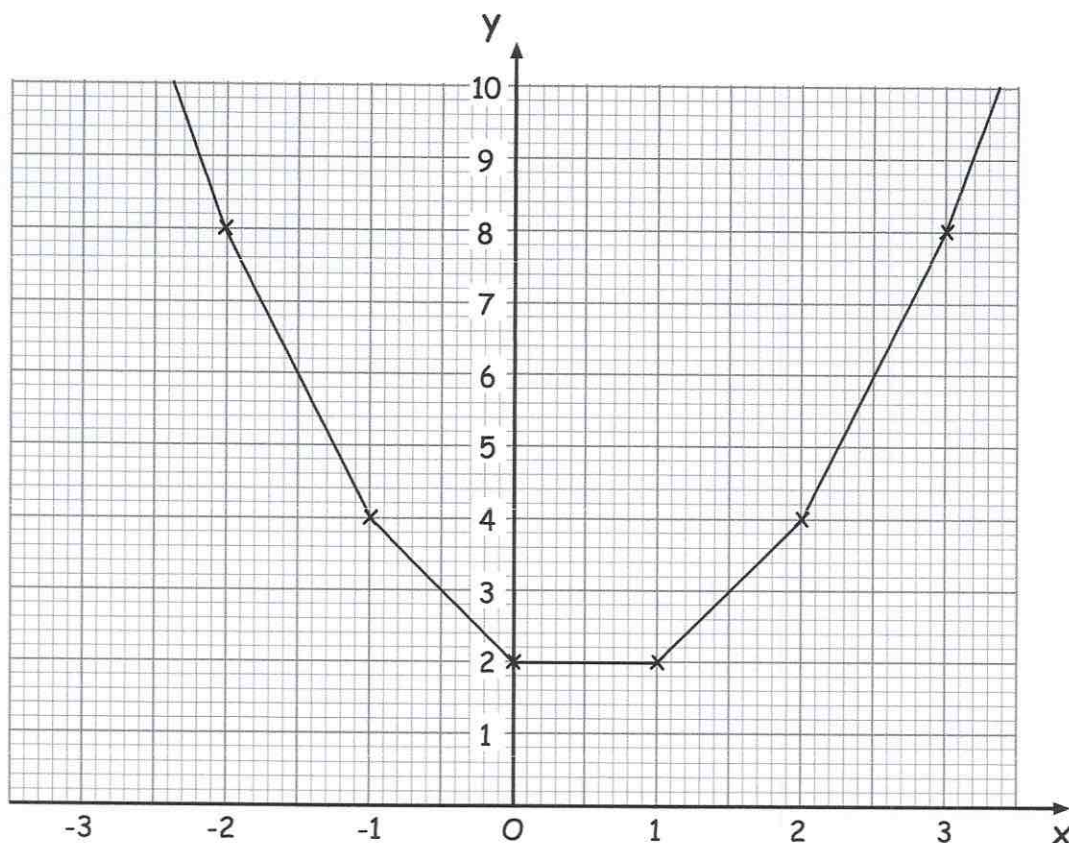


(2)

5. Adam wants to draw the graph of $y = x^2 - x + 2$



He drew this graph.



Write down two criticisms of Adam's graph.

Criticism 1

Adam has used straight lines to join the points.
He should use a curve.

Criticism 2

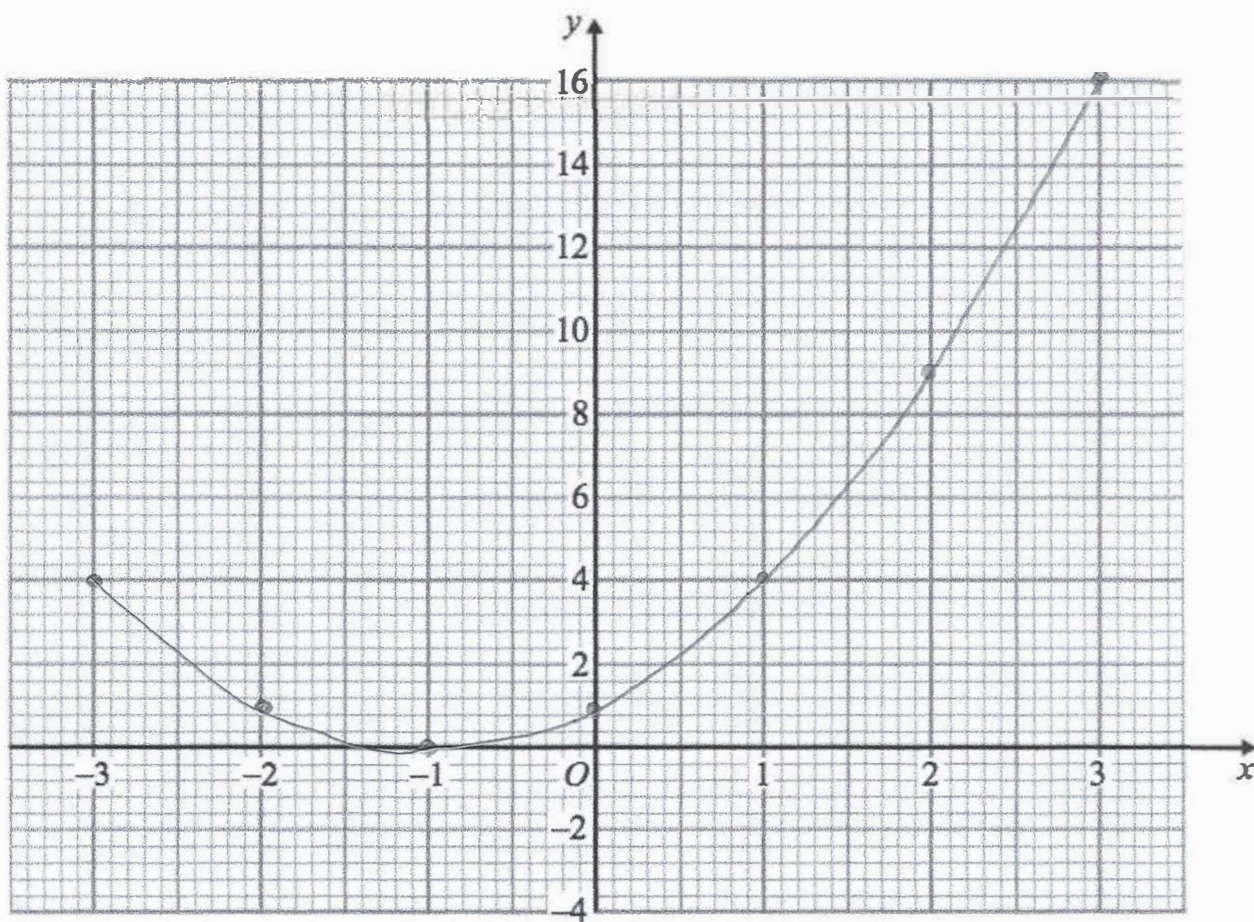
The line joining $(0, 2)$ and $(1, 2)$ is horizontal / flat.
It should be a curve that dips below 2 and
then rise up again. (2)

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

x	-3	-2	-1	0	1	2	3
y	4	1	0	1	4	9	16

(2)

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

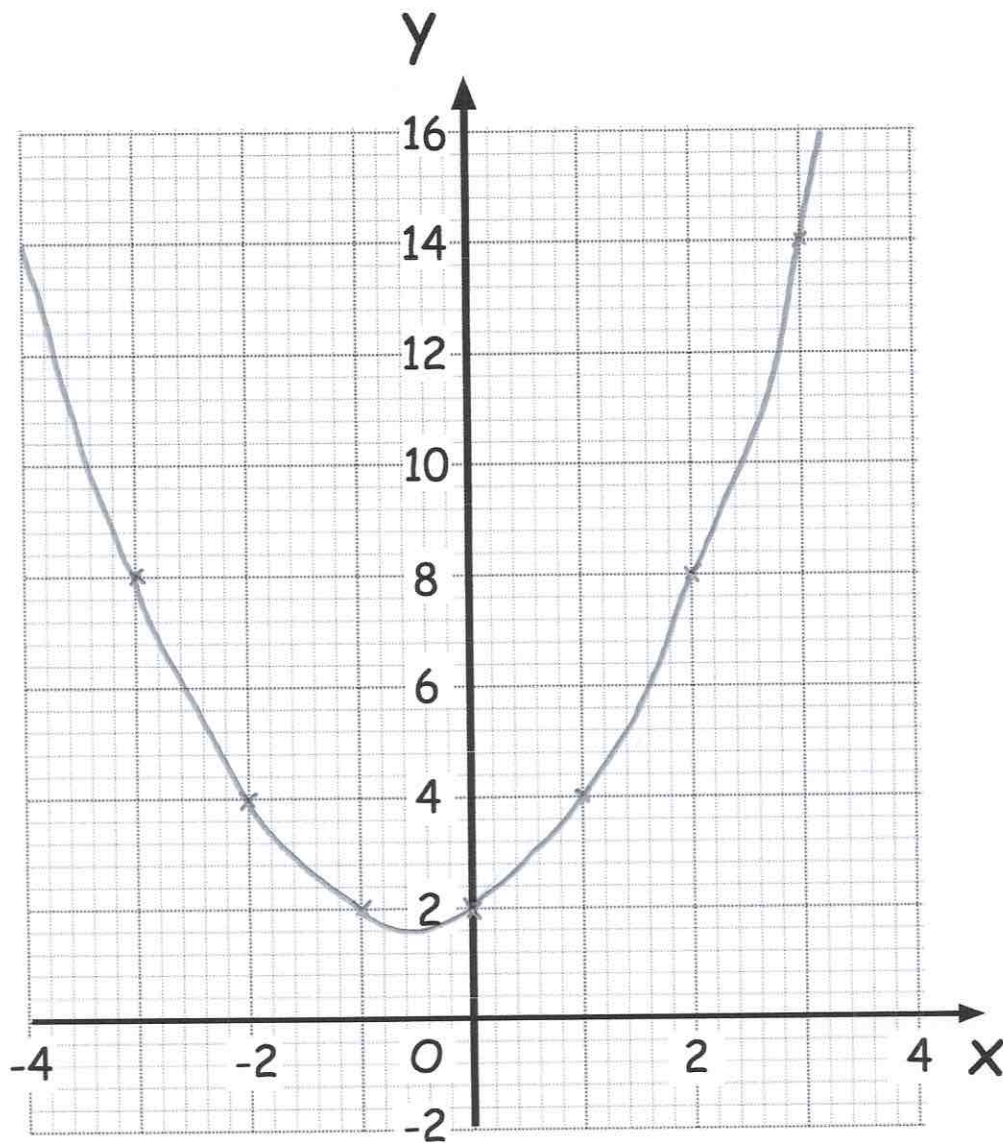


(2)

7. Draw the graph of $y = x^2 + x + 2$ for the values of x from -3 to 3



x	-3	-2	-1	0	1	2	3	4
y	8	4	2	2	4	8	14	22

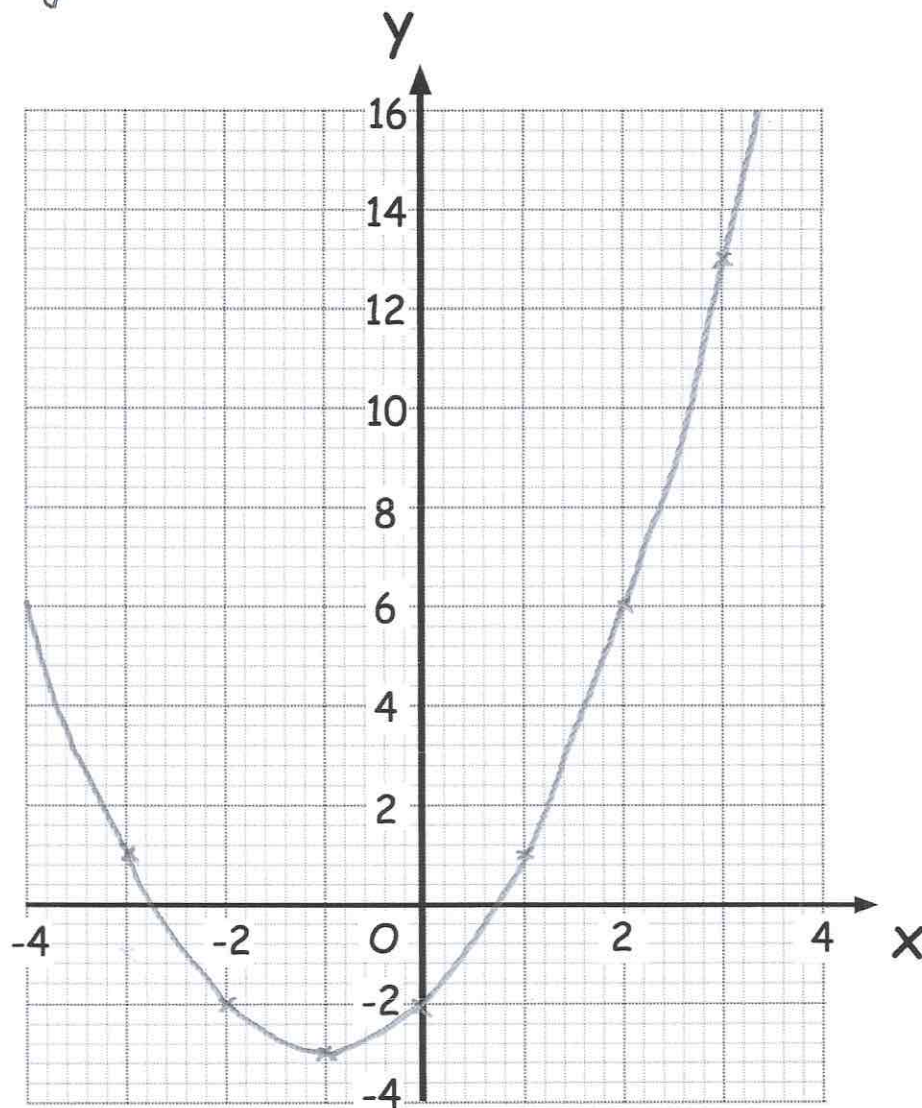


(4)

8. (a) Draw the graph of $y = x^2 + 2x - 2$ for the values of x from -3 to 3



x	-3	-2	-1	0	1	2	3
y	1	-2	-3	-2	1	6	13



(4)

- (b) Write down the coordinates of the minimum point of $y = x^2 + 2x - 1$

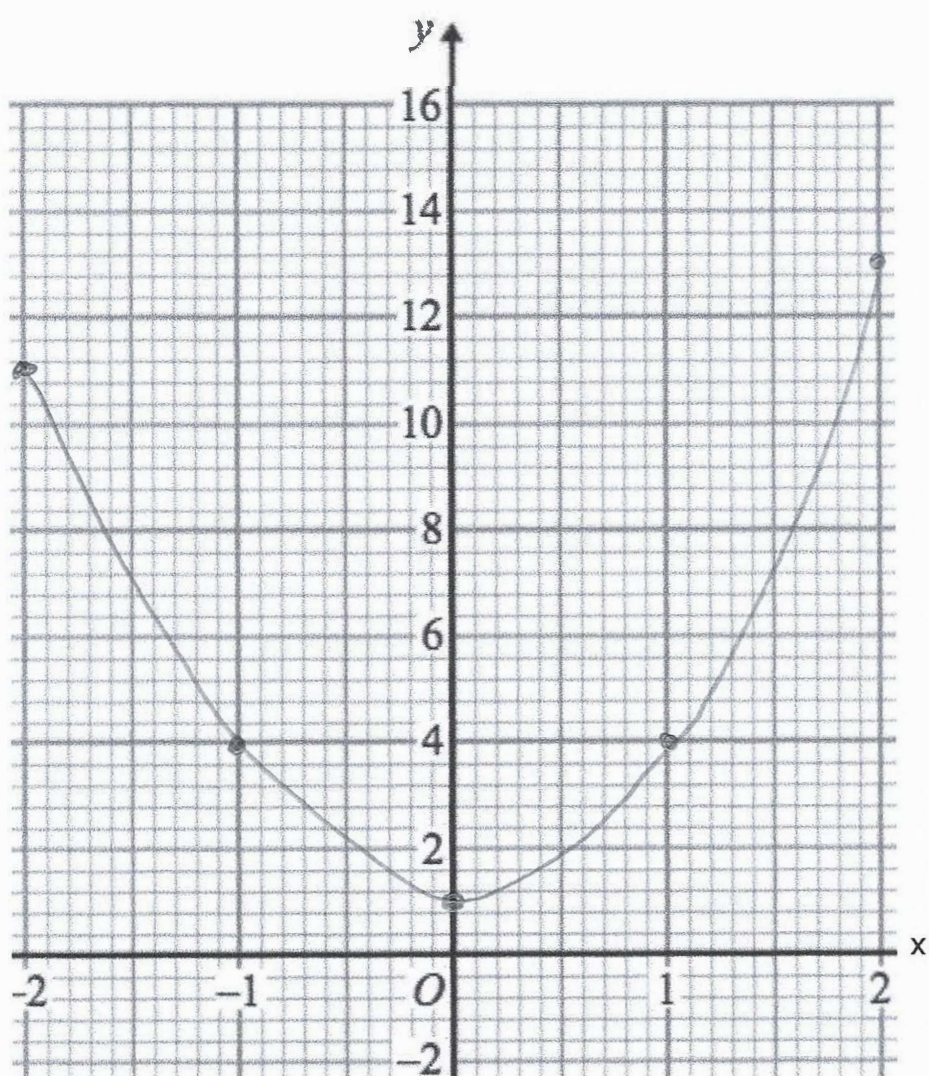
$(-1, -3)$
(1)

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

x	-2	-1	0	1	2
y	13	4	1	4	13

(2)

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



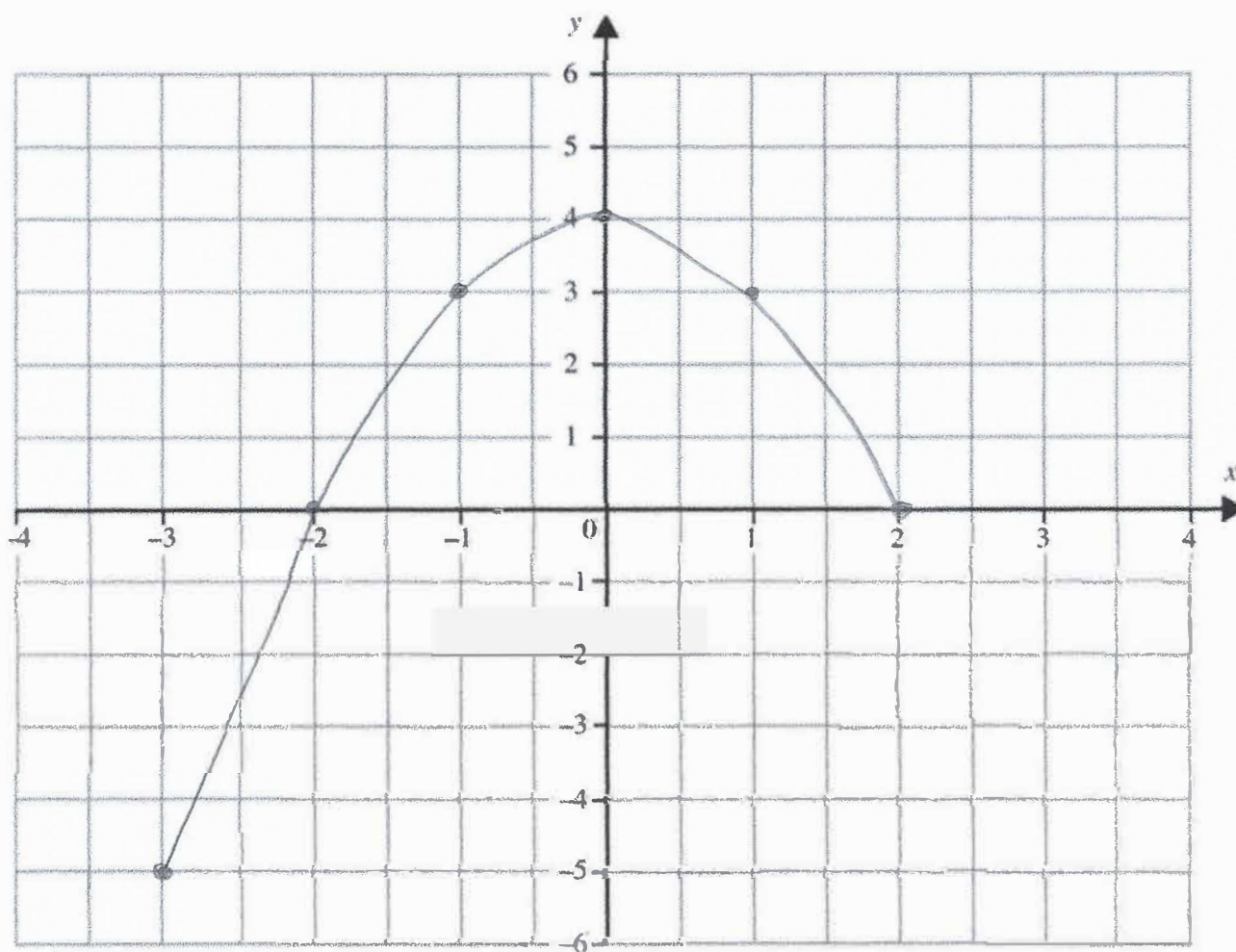
(2)

10. (a) Complete the table for the graph $y = 4 - x^2$

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

(2)

(b) Hence draw the graph on the grid.



(2)

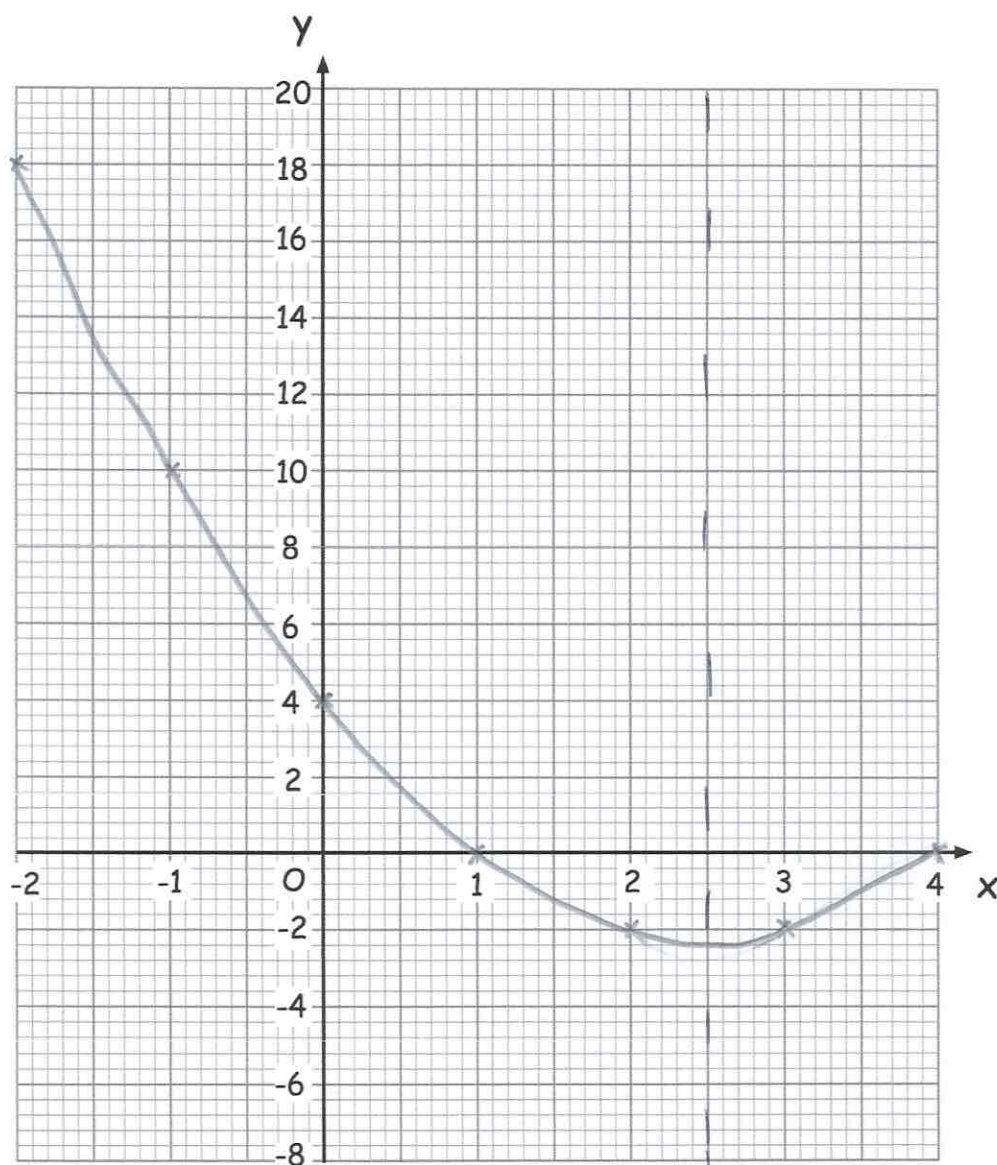
11. (a) Complete the table of values for $y = x^2 - 5x + 4$



x	-2	-1	0	1	2	3	4
y	18	10	4	0	-2	-2	0

(2)

- (b) On the grid, draw the graph of $y = x^2 - 5x + 4$ for the values of x from -2 to 4



(2)

- (c) Write down the equation of the line of symmetry of $y = x^2 - 5x + 4$

$$x = 2.5$$

(1)

12. Circle the point that does **not** lie on the graph with equation $y = x^2 - 5x + 3$



$(-5, 53)$

✓

$(-1, 9)$

✓

$(0, 2)$

x

$(0, 3)$

$(2, -3)$

✓

(1)

13. Circle the point that lies on the graph with equation $y = 2x^2 + x - 1$



$(-2, -11)$

x

$(-2, 5)$

$(1, 4)$

x

$(1, 2)$

$(2, 7)$

x

$(2, 9)$

$(3, 20)$

✓

(1)

14. The graph of $y = x^2 + 6x$ is drawn.



The x-coordinate of a point on the graph is -2

Write down the coordinates of the point.

$$x = -2$$

$$y = (-2)^2 + 6(-2)$$

$$y = 4 + (-12)$$

$$y = 4 - 12$$

$$y = -8$$

$(-2, -8)$

(2)

15. The graph of $y = x^2 + x + 7$ is drawn.



The y-coordinates of two points on the graph are equal to 49

Write down the coordinates of the two points.

Approach 1

$$x = -8, y = 63 \quad \times$$

$$x = -7, y = 49 \quad \checkmark$$

$$x = 5, y = 37$$

$$x = 6, y = 49 \quad \checkmark$$

Approach 2

$$x^2 + x + 7 = 49$$

$$x^2 + x - 42 = 0$$

$$(x + 7)(x - 6) = 0$$

$$x = -7 \quad \text{or} \quad x = 6$$

$$(-7, 49) \quad (6, 49)$$

$$\underline{(-7, 49)} \quad \text{and} \quad \underline{(6, 49)}$$

(3)