1. Nov/2023/Paper_0580/12/No.22
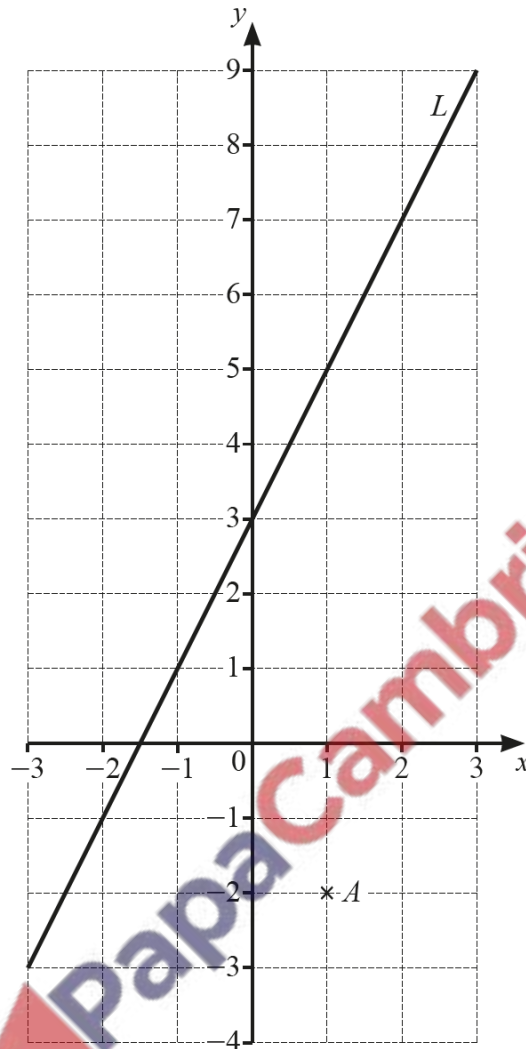
Point A and line L are shown on the grid.

(a) Write down the coordinates of point A.
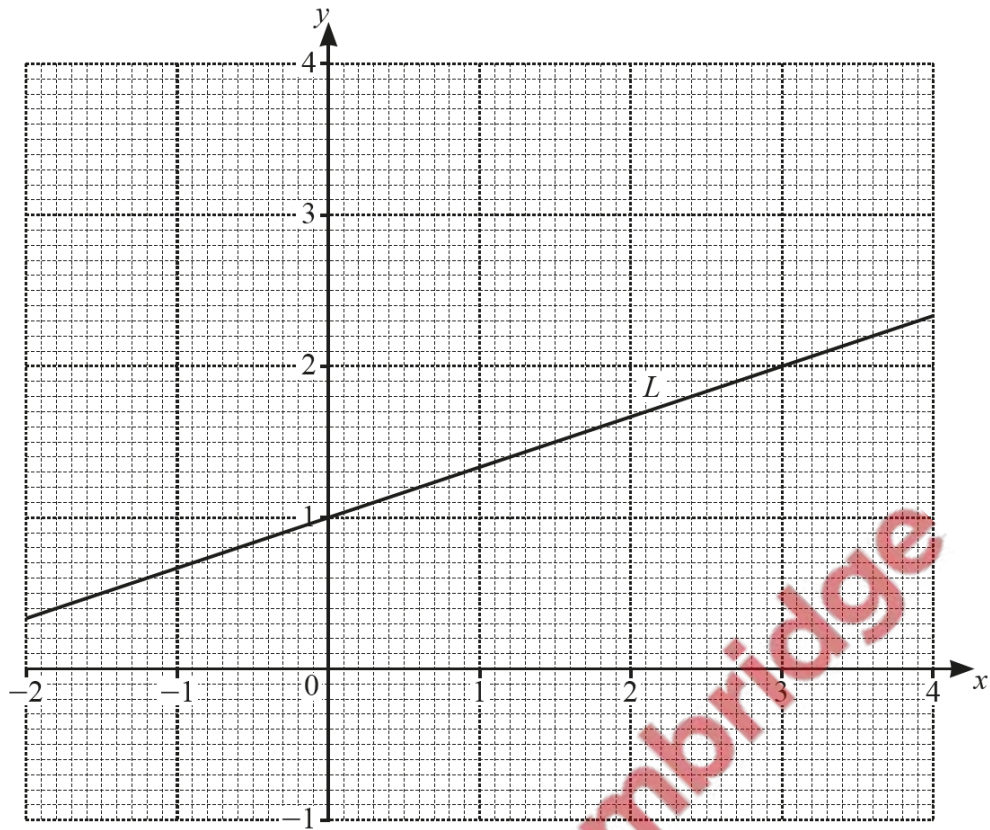
(........................ , ...) [1]

(b) On the grid, plot the point $(-2, 4)$. [1]

(c) Find the equation of line L.

.... [3]

1

(a) Find the equation of line L in the form $y = mx + c$.

$y =$ .... [2]

(b) On the grid, draw a line that is perpendicular to line L. [1]
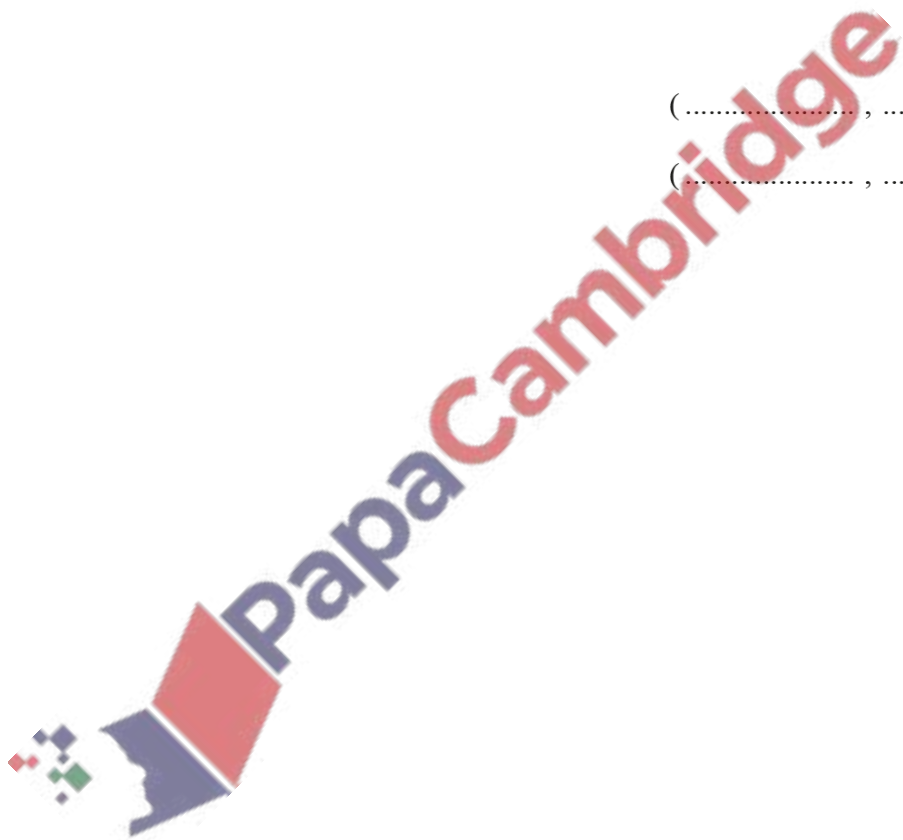
The line $y = x + 1$ intersects the curve $y = x^2 + x - 3$ at two points.

Find the coordinates of the two points.

(...................... , ...)
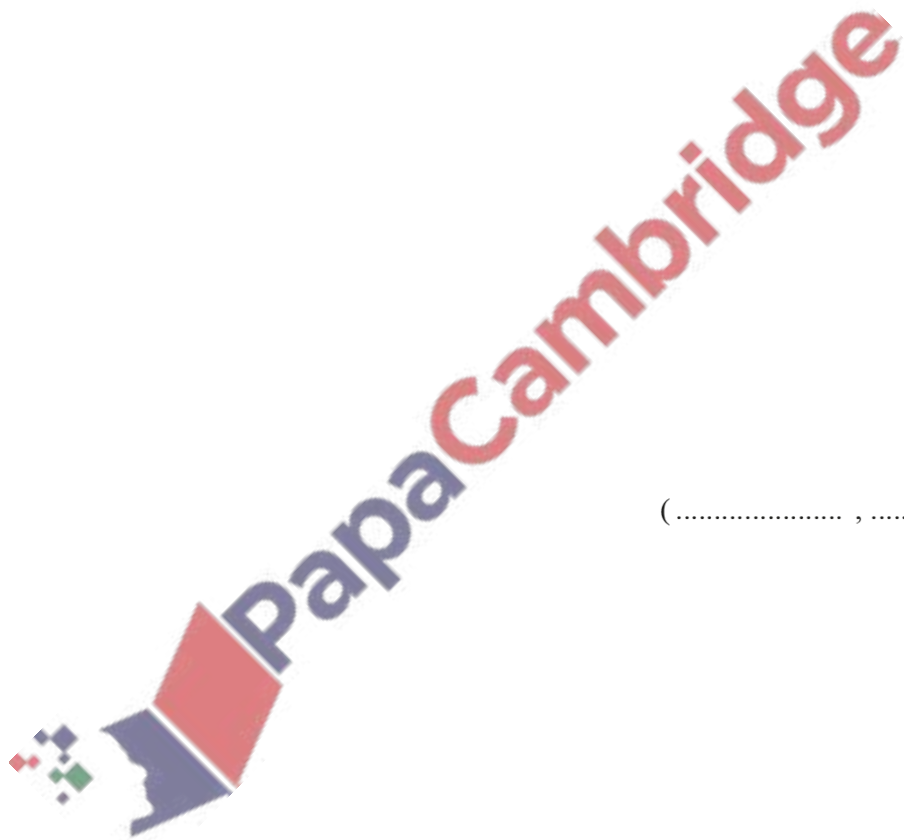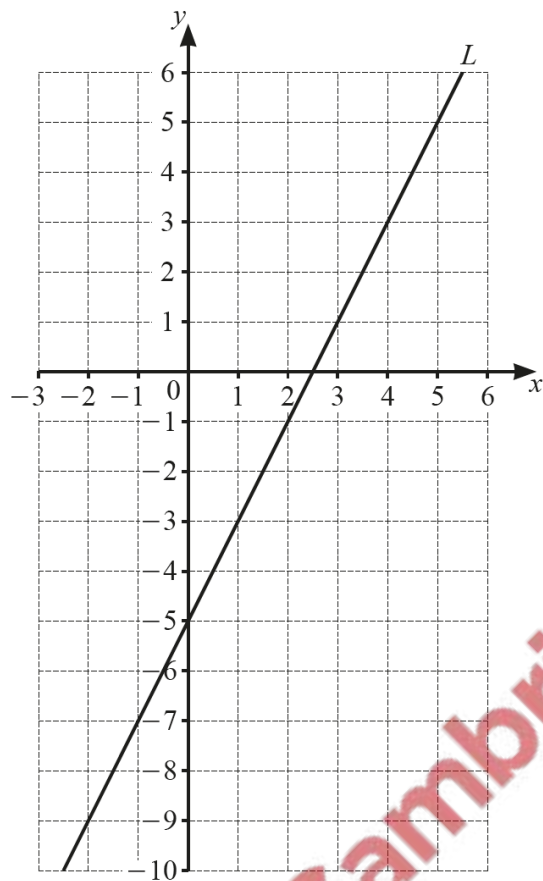
(...................... , ...) [4]

Find the coordinates of the point where the line $4x + y = 9$ intersects the curve $y + x^2 = 5$.
You must show all your working.

(...................... , ...) [5]

(a) Find the equation of line L in the form $y = mx + c$.

$y =$ .... [2]

(b) (i) On the grid, draw the line $y = x$. [1]

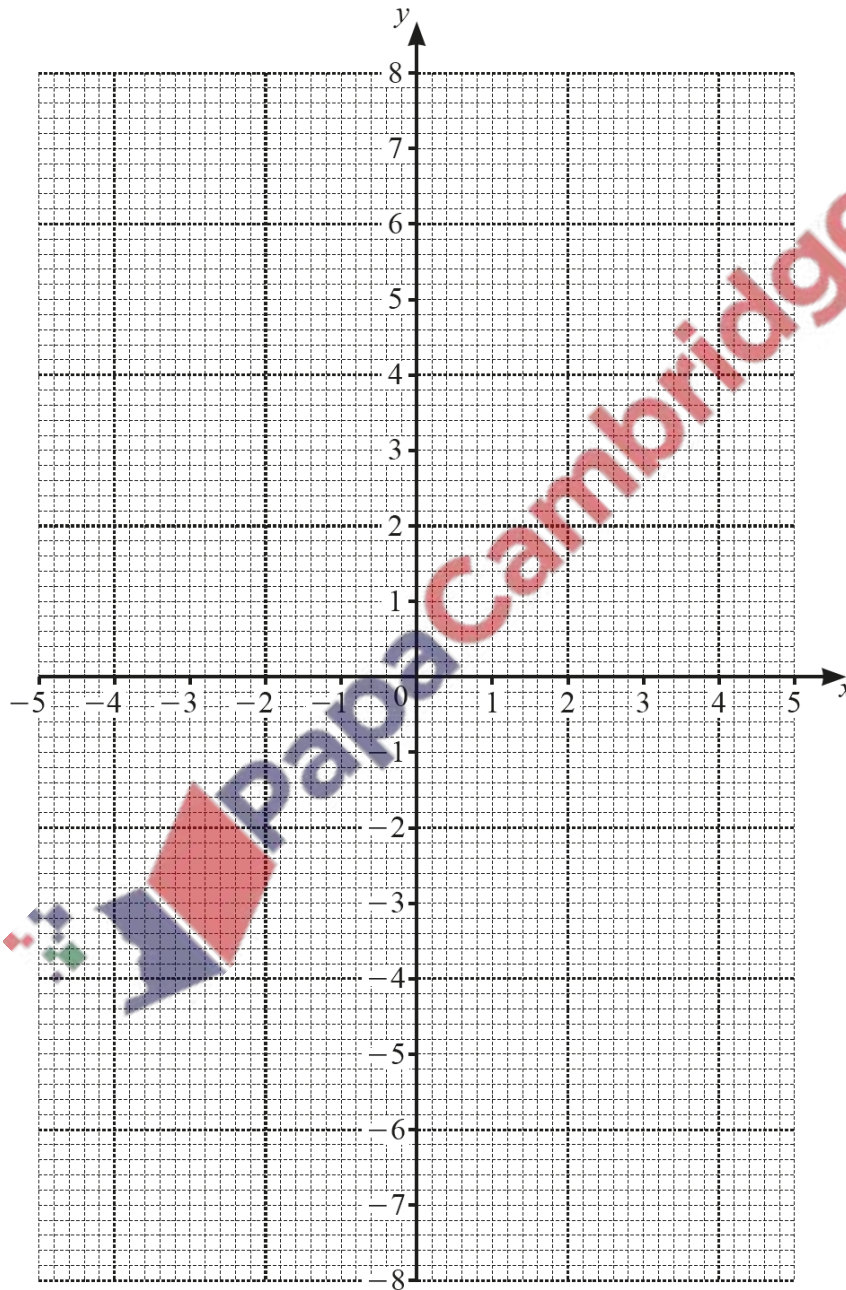**(ii)** Write down the coordinates of the point where the line $y = x$ intersects line L.

(....................... , ...) [1]

(c) (i) Complete the table of values for $y = \dfrac{8}{x}$.

x	-5	-4	-3	-2	-1		1	2	3	4	5
y	-1.6		-2.7						2.7		1.6

[3]

(ii) On the grid, draw the graph of $y = \dfrac{8}{x}$ for $-5 \leqslant x \leqslant -1$ and $1 \leqslant x \leqslant 5$.

[4]
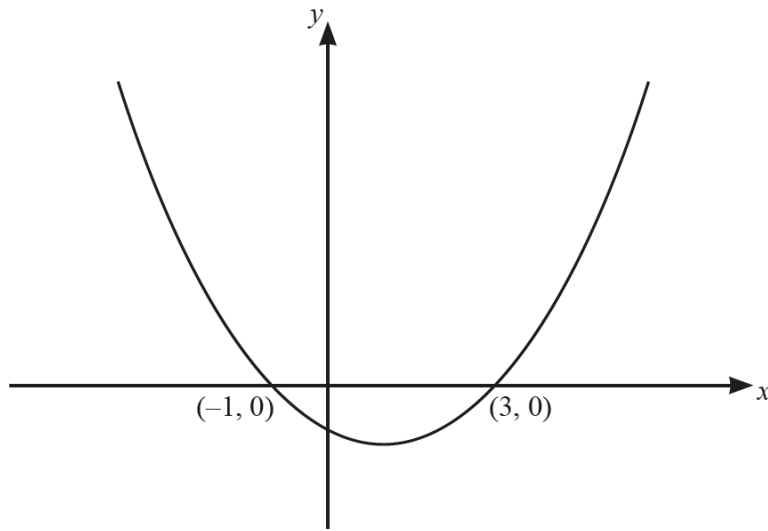
The sketch shows the graph of $y = x^2 - 2x - 3$.
The graph crosses the x-axis at $(-1, 0)$ and $(3, 0)$.

(a) Find the equation of the line of symmetry of the graph.

.... [1]

(b) (i) The point A with coordinates $(6, k)$ lies on the graph.

Show that the value of k is 21.

[1]

(ii) The point B with coordinates $(p, 21)$ also lies on the graph.

Find the value of p.

$p =$ .... [1]

(c) Write down the y-coordinate of the point where the graph crosses the y-axis.

.... [1]

A is the point (0, 2), *B* is the point (3, 3) and *C* is the point (4, 0).

(a) Determine if triangle *ABC* is scalene, isosceles or equilateral.
You must show all your working.

[4]

(b) (i) Find the equation of the line *AC*.
Give your answer in the form $y = mx + c$.

$y =$ .... [3]

(ii) Find the equation of the perpendicular bisector of *AC*.
Give your answer in the form $y = mx + c$.

$y =$ .... [4]

(iii) *ABCD* is a kite.
The point *D* has coordinates $(w, 4w+1)$.

Find the coordinates of *D*.

(..................... , ...) [3]