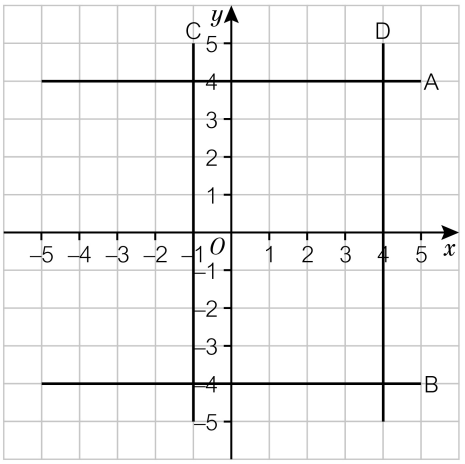
Name:

9.5 Straight-line graphs

1 Write down the equations of the lines labelled A, B, C and D.



A.....

B.....

C.....

D.....

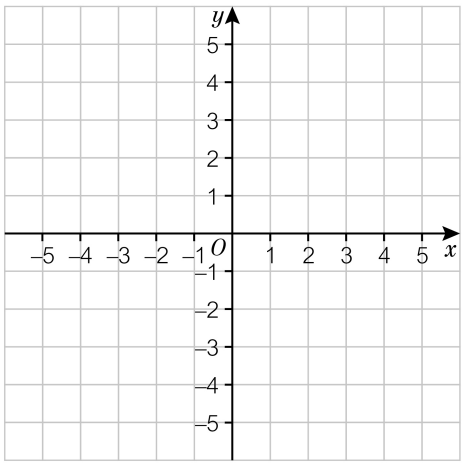
2 Draw and label these graphs on the grid.

a $x = 3$

b $y = 4$

c $x = -2$

d $y = -5$



3 **a** Complete this table of values for the equation $y = 2x$.

x	0	1	2	3	4
y					

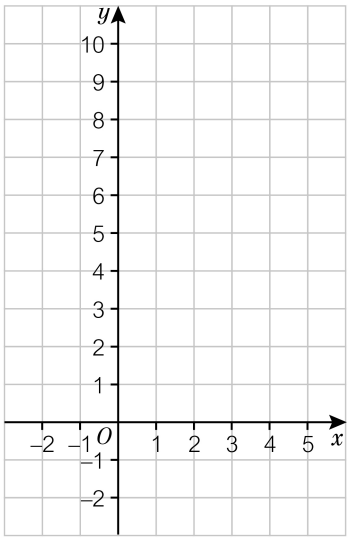
b Write down the coordinates from the table.

.....

c Plot the coordinates on the grid. Draw and label your graph.

d What is the value of y when $x = 6$?

.....

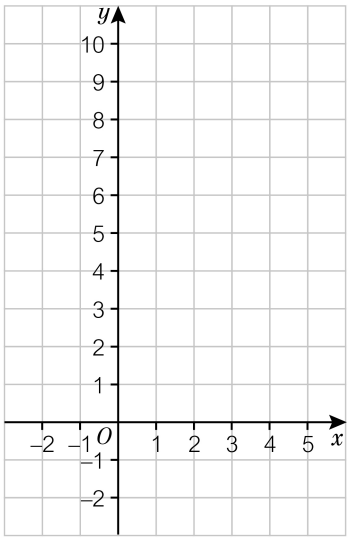


Name:

4 **a** Complete this table of values for the equation $y = 2x + 3$.

x	0	1	2	3
y				

b Draw the graph of $y = 2x + 3$.



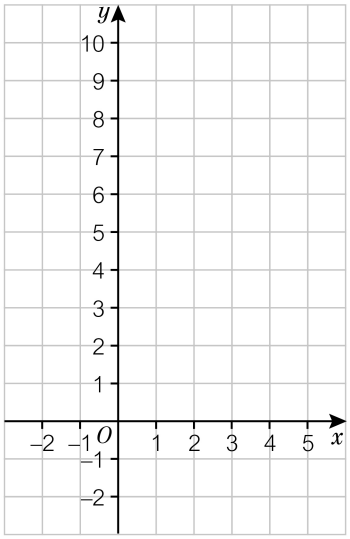
c What is the value of y when $x = \frac{1}{2}$?

.....

5 **a** Complete this table of values for the equation $y = 2x - 1$.

x	0	1	2	3	4	5
y						

b Draw the graph of $y = 2x - 1$.



c Reasoning Look at the graphs you drew in **Q3**, **Q4** and **Q5**. What do you notice?

.....

.....

Name:

9.5 Straight-line graphs

1 Look at these points.

A(3, 4) B(4, 3) C(−3, 4) D(−4, −3) E(4, 0).

Which of the points are on the line $x = 4$? .....

2 Match the equations of the graphs to the lines.

$x = -4$ .....

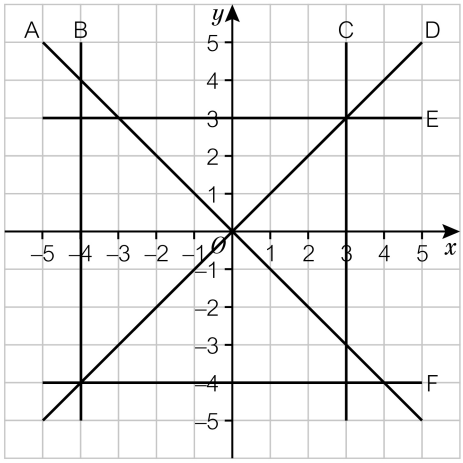
$y = -4$ .....

$x = 3$ .....

$y = 3$ .....

$y = x$ .....

$y = -x$ .....

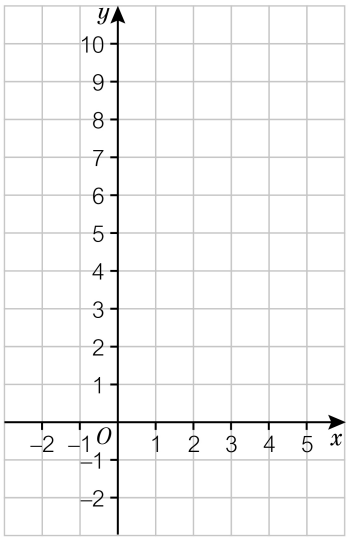


3 **a** Complete the table of values for the equation $y = 3x + 4$.

x	0	1	2
y			

b Plot the coordinates from the table. Join them with a straight line.

c Extend your straight line to $y = -2$.



d Write three pairs of negative x- and y-coordinates that lie on the line $y = 3x + 4$.

.....

e Are there any pairs of negative x- and positive y-coordinates that lie on the line $y = 3x + 4$?
If so, write one pair. .....

f Are there any pairs of positive x- and negative y-coordinates that lie on the line $y = 3x + 4$?
If so, write one pair. .....

Name:

4 **a** Complete the table of values for the equation $y = 2x - 1$.

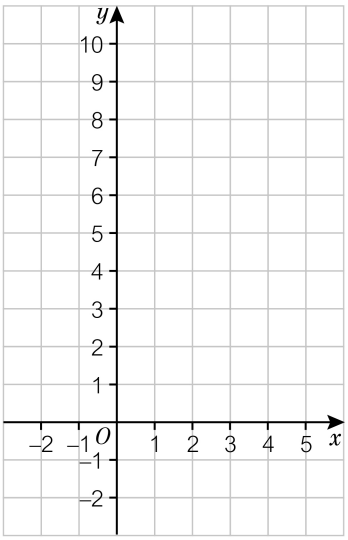
x	0	1	2
y			

b Plot the graph of $y = 2x - 1$.

c Complete the table of values for the equation $y = 5 - x$.

x	0	1	2
y			

d Plot the graph of $y = 5 - x$ on the same grid.

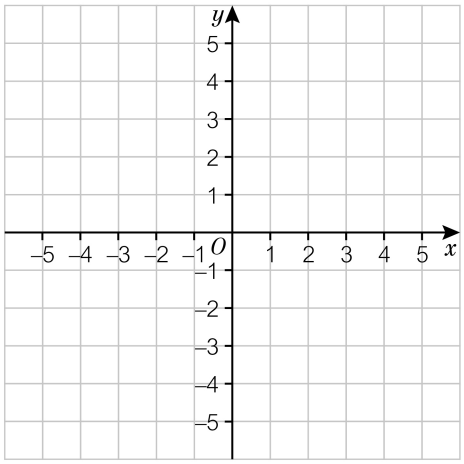


e Write the coordinates of the point where the two graphs intersect. .....

Name:

9.5 Straight-line graphs

1 **a** Plot these coordinates on the grid:
(4, 3), (2, 3), (0, 3), (−2, 3).



b Use a ruler to join the points with a straight line.

c Look at the y-coordinate of each point.
Complete the equation of the line.

y = ...

d Write the coordinates of another point on your line.

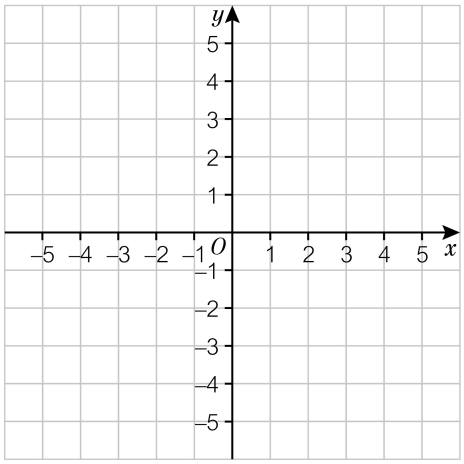
.....

e Plot these coordinates on the same grid:
(3, −2), (1, −2), (−1, −2), (−3, −2).
Repeat question parts **b**, **c** and **d**.

y = ...

.....

2 **a** Plot these coordinates on the grid:
(2, 3), (2, 1), (2, −1), (2, −3).



b Use a ruler to join the points with a straight line.

c Look at the x-coordinate of each point.
Complete the equation of the line.

x = ...

d Write the coordinates of another point on your line.

.....

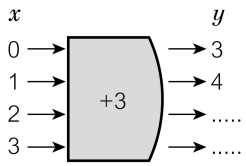
e Plot these coordinates on the same grid:
(−1, 4), (−1, 2), (−1, 0), (−1, −2).
Repeat question parts **b**, **c** and **d**.

x = ...

.....

Name:

3 **a** Complete the function machine for $y = x + 3$.



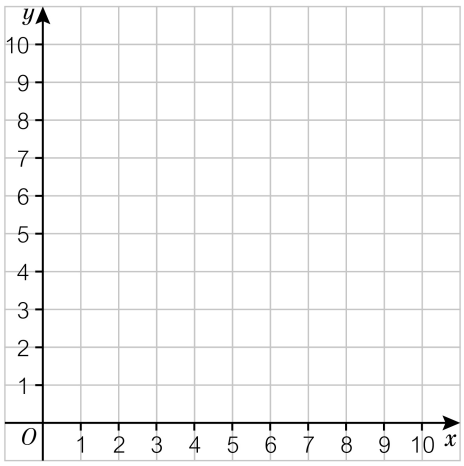
b Use the function machine to complete the table for $y = x + 3$.

x	0	1	2	3
y				

c Complete the pairs of x- and y-values in the table as coordinates.

(0, 3), (1, 4), (2, ...), (3, ...)

d Plot the coordinates in part **c** on the coordinate grid.
Join the points with a straight line.



e Extend your straight line to the edge of your grid to draw a graph.

9.5 Straight-line graphs

Core

1 A: $y = 4$, B: $y = -4$, C: $x = -1$, D: $x = 4$

2 Students draw and label the lines $x = 3$, $y = 4$, $x = -2$ and $y = -5$

3 **a** 0, 2, 4, 6, 8 **b** (0, 0), (1, 2), (2, 4), (3, 6), (4, 8)

c Students draw and label the graph of $y = 2x$ **d** $y = 12$

4 **a** 3, 5, 7, 9 **b** Students draw and label the graph of $y = 2x + 3$ **c** $y = 4$

5 **a** −1, 1, 3, 5, 7, 9 **b** Students draw and label the graph of $y = 2x - 1$ **c** They are all parallel

Depth

1 B and E

2 B, F, C, E, D, A

3 **a** 4, 7, 10 **b** Students draw and label the graph of $y = 3x + 4$

c Students extend their line to $y = -2$

d (−2, −2), (−3, −5), (−4, −8) **e** Just (−1, 1) **f** none

4 **a** −1, 1, 3 **b** Students draw and label the graph of $y = 2x - 1$ **c** 5, 4, 3

d Students draw and label the graph of $y = 5 - x$ **e** (2, 3)

Support

1 **a, b** Students plot the points (4, 3), (2, 3), (0, 3), (−2, 3) and join them, using a ruler

c $y = 3$ **d** another coordinate on the line, for example, (1, 3)

e $y = -2$ and another coordinate on the line, for example, (0, −2)

2 **a, b** Students plot the points (2, 3), (2, 1), (2, −1), (2, −3) and join them, using a ruler

c $x = 2$ **d** another coordinate on the line, for example, (2, 2)

e $x = -1$ and another coordinate on the line, for example, (−1, 1)

3 **a** 5, 6 **b** 3, 4, 5, 6 **c** (2, 5), (3, 6)
d, e Students draw the graph of $y = x + 3$ and extend it