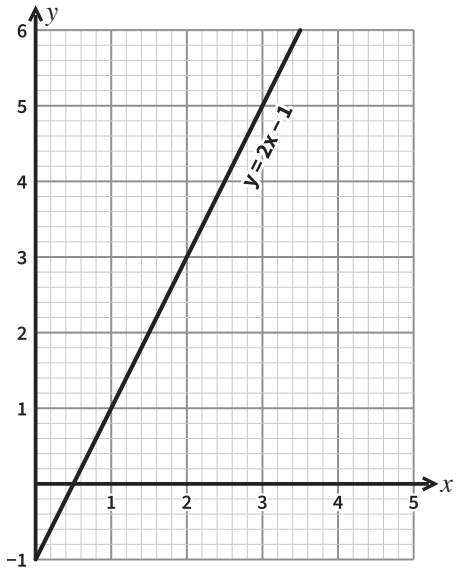
Simultaneous equations: solving with graphs

1

The line $y = 2x - 1$ is drawn. Draw the line $x + y = 5$.
Solve the simultaneous equations.



$x + y = 5$

x	y
0	5
2	
4	

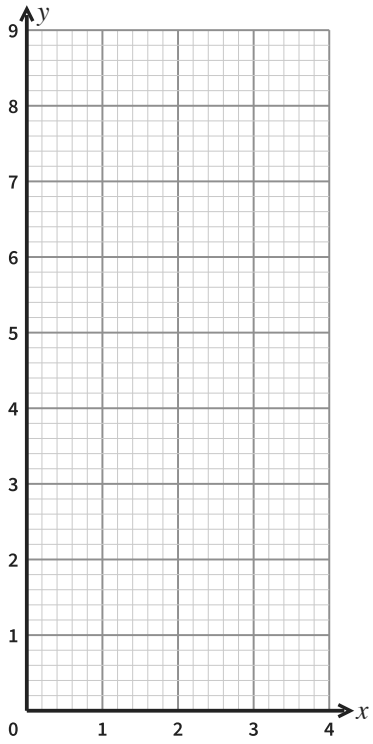
$x =$ _____ $y =$ _____

Check in both equations

_____

2

Draw the lines $y = 3x - 3$ and $y = x + 3$.
Solve the simultaneous equations.



$y = 3x - 3$

x	y
1	0
2	
3	

$y = x + 3$

x	y
0	3
1	
2	
3	

$x =$ _____

$y =$ _____

Check in both equations

_____

_____

3

Draw $2x + y = 4$ from where it crosses the axes.
Draw $y = x + 1$. Solve the simultaneous equations.

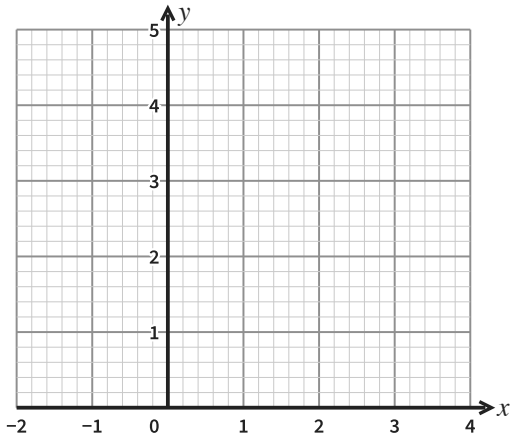
$2x + y = 4$

crosses the y axis at (0, ☐)

crosses the x axis at (☐, 0)

$y = x + 1$

x	−1	0	2
y			



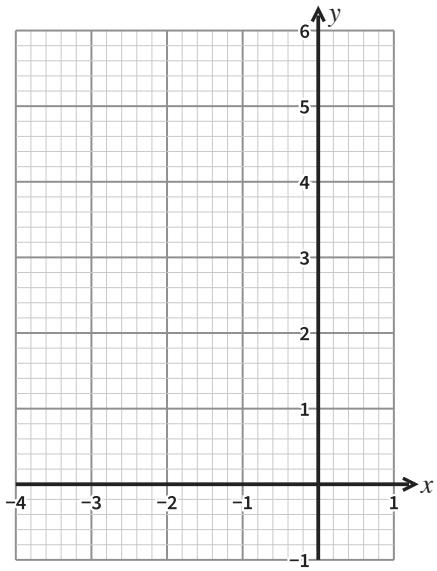
$x =$ _____ $y =$ _____

Check in both equations

_____

4

Draw the lines $y = 2 - x$ and $y = 2x + 8$.
Solve the simultaneous equations.



$x =$ _____

$y =$ _____

Check in both equations

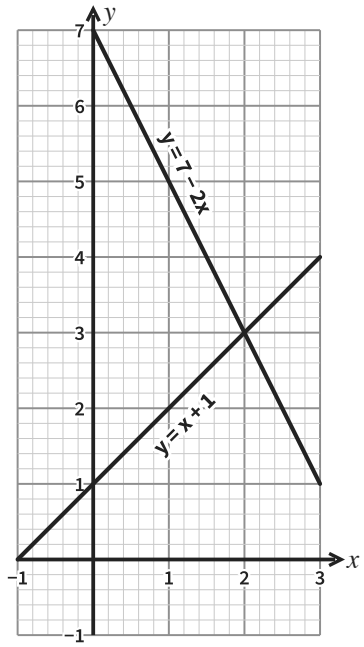
_____

_____

Simultaneous equations: solving with graphs

5

The lines $y = x + 1$ and $y = 7 - 2x$ are drawn. Nia says the solution is $x = 3$, $y = 2$. What has Nia done wrong?
Write the correct solution.



$x =$ _____

$y =$ _____

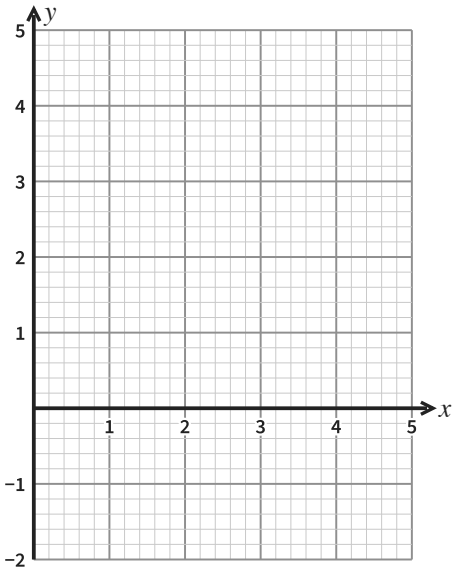
Check in both equations

_____

_____

6

(a) Draw the lines $x + y = 5$ and $x - y = 2$. Use your graph to estimate the solution. (b) Add the equations to solve them exactly.



(a)

$x \approx$ _____

$y \approx$ _____

(b)

$x =$ _____

$y =$ _____

Check in both equations

_____

7

Draw $2x + 3y = 12$ and $x + y = 5$ from where they cross the axes. Solve the simultaneous equations.

$2x + 3y = 12$

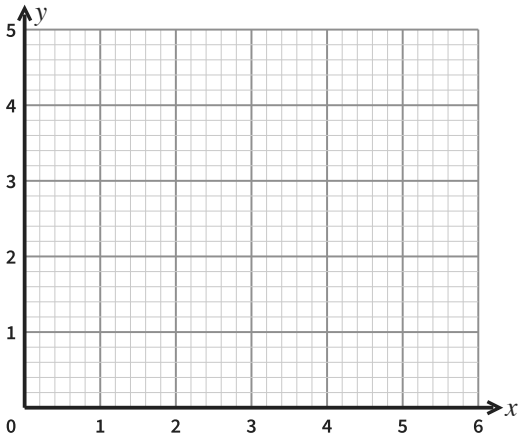
when $x = 0$, $y =$ ☐

when $y = 0$, $x =$ ☐

$x + y = 5$

when $x = 0$, $y =$ ☐

when $y = 0$, $x =$ ☐



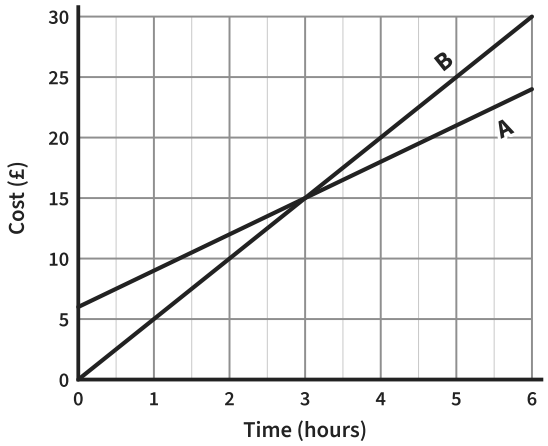
$x =$ _____ $y =$ _____

Check in both equations

_____

8

Plan A hires out scooters for £6 plus £3 an hour.
Plan B charges £5 an hour. The graph shows both plans.
(a) After how many hours do they cost the same?
(b) Which plan is cheaper for a 2 hour ride?
Give both costs.



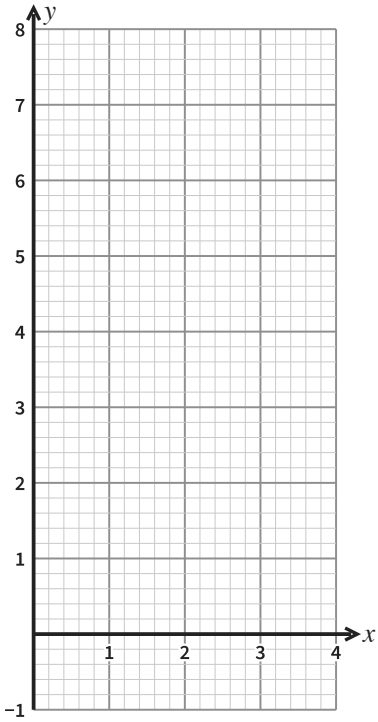
(a) _____

(b) _____

Simultaneous equations: solving with graphs *further practice*

9

Solve the simultaneous equations $y = 3x - 4$ and $y = x + 2$ by drawing their lines.



$x =$ _____

$y =$ _____

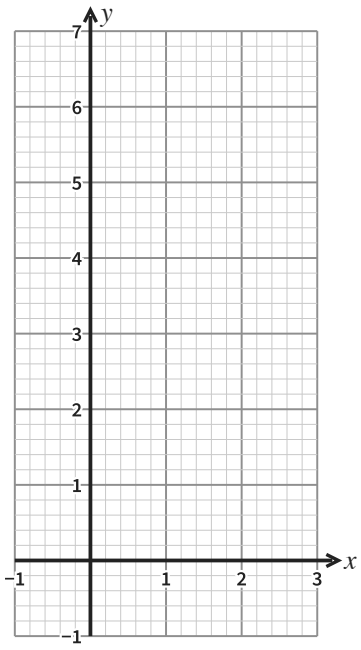
Check in both equations

_____

_____

10

Solve the simultaneous equations $3x + y = 6$ and $y = 2x + 1$ by drawing their lines.



$x =$ _____

$y =$ _____

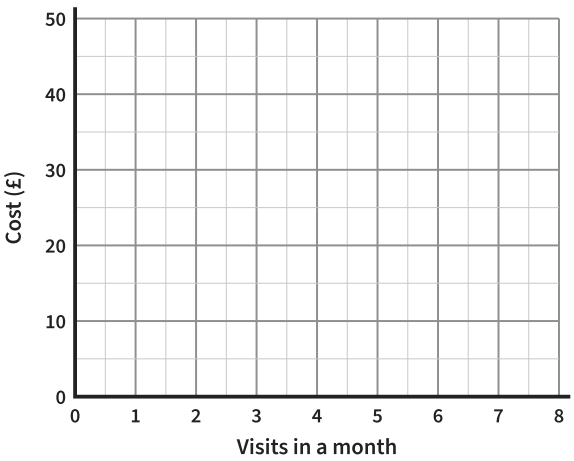
Check in both equations

_____

_____

11

A gym charges £6 a visit, so $C = 6v$. Members pay £20 a month plus £2 a visit, so $C = 2v + 20$. Draw both lines.
(a) For how many visits is the cost the same? (b) Which is cheaper for 3 visits?

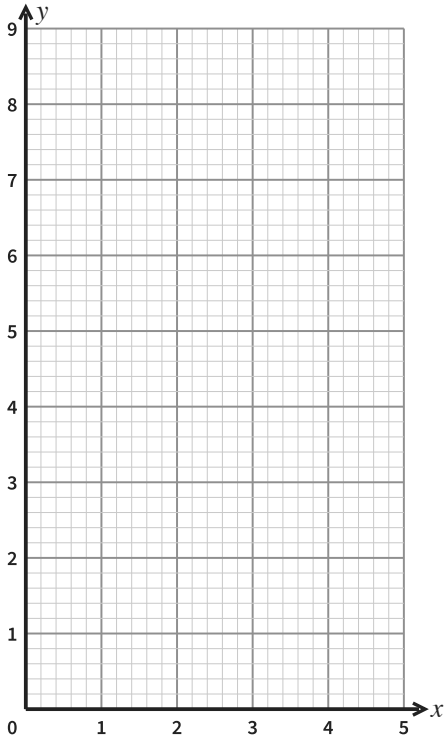


(a) _____

(b) _____

12

Two numbers x and y add up to 9. y is 5 more than x.
Draw the lines $x + y = 9$ and $y = x + 5$.
Find the two numbers.



$x =$ _____

$y =$ _____

Check in both equations

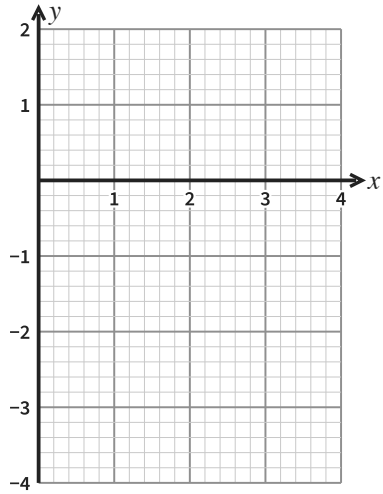
_____

_____

Simultaneous equations: solving with graphs *further practice*

13

(a) Draw the lines $x + y = 1$ and $x - y = 4$. Use your graph to estimate the solution. (b) Add the equations to solve them exactly.



(a)

$x \approx$ _____

$y \approx$ _____

(b)

$x =$ _____

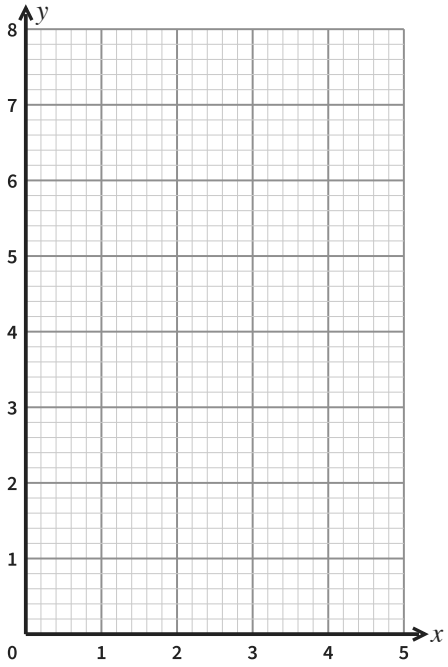
$y =$ _____

Check in both equations

_____

14

Line A has gradient 2 and crosses the y axis at 1.
Line B has gradient −1 and crosses the y axis at 7.
Draw both lines. Write their equations and find where they cross.



A: _____

B: _____

$x =$ _____

$y =$ _____

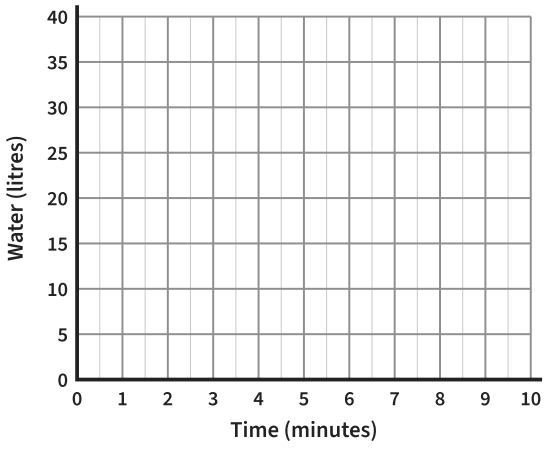
Check in both equations

_____

_____

15

Tank A holds 40 litres and drains at 4 litres a minute, so $V = 40 - 4t$. Tank B holds 10 litres and fills at 2 litres a minute, so $V = 10 + 2t$. Draw both lines. (a) When do they hold the same amount? (b) How much more is in tank B after 8 minutes?

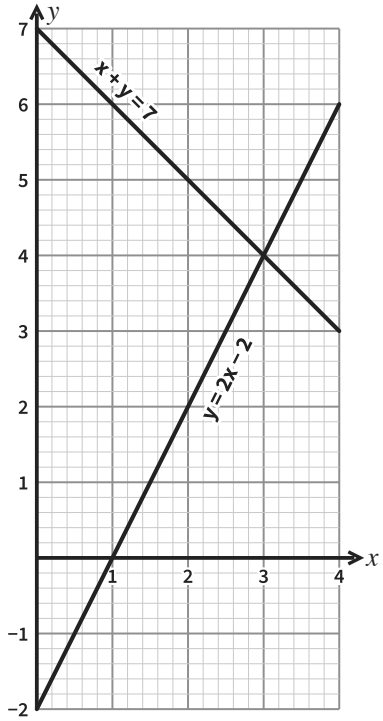


(a) _____

(b) _____

16

The lines $y = 2x - 2$ and $x + y = 7$ are drawn. Sam says the solution is $x = 1$, $y = 0$. Explain what Sam has done wrong. Write the correct solution.



_____

_____

_____

$x =$ _____

$y =$ _____

Check in both equations

_____

_____