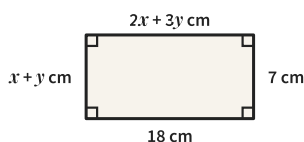


Simultaneous equations in context

ANSWERS

1

This is a rectangle. Find x and y .



first fact $2x + 3y = 18$
second fact $x + y = 7$
 $x = 3$ $y = 4$

Answer $x = 3, y = 4$

2

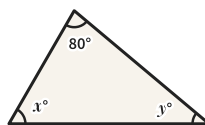
3 pens and 2 notebooks cost £5.40.
1 pen and 2 notebooks cost £3.40.
A pen costs £ x and a notebook costs £ y .
Find the cost of each.

first fact $3x + 2y = 5.40$
second fact $x + 2y = 3.40$
 $x = 1$ $y = 1.20$

Answer pen £1, notebook £1.20

3

Angle x is 20° more than angle y .
Find x and y .



first fact $x + y = 100$
second fact $x - y = 20$
 $x = 60$ $y = 40$

Answer $x = 60, y = 40$

4

2 adult and 3 child tickets for a show cost £36. 1 adult and 4 child tickets cost £33. An adult ticket is £ x and a child ticket is £ y . Find the price of each.

$x = 9$ $y = 6$
adult £9, child £6

Answer

5

A rectangle has a perimeter of 30 cm. Its length is 3 cm more than twice its width. Find its area.

length + width = 15 and
length = $2 \times$ width + 3; width 4 cm,
length 11 cm

Answer 44 cm^2

6

In a parallelogram, one angle is $(3x + y)^\circ$, the angle opposite it is 110° and the angle next to it is $(x + y)^\circ$. Find x and y .

opposite angles: $3x + y = 110$; next to
 110° : $x + y = 70$

Answer $x = 20, y = 50$

7

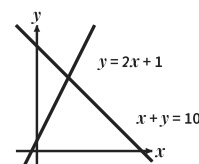
A jar holds 20 coins, all 10p or 50p. Together they are worth £5.20. How many of each coin are there?

$x + y = 20$ and $10x + 50y = 520$

Answer $12 \times 10p, 8 \times 50p$

8

The lines $y = 2x + 1$ and $x + y = 10$ cross at P. Find the coordinates of P.



$x + 2x + 1 = 10$

Answer $(3, 7)$

Simultaneous equations in context further practice

ANSWERS

9

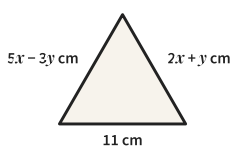
Cinema tickets for 3 adults and 2 children cost £40. Tickets for 2 adults and 5 children cost £45. Find the price of an adult ticket and of a child ticket.

$3x + 2y = 40$, $2x + 5y = 45$

Answer adult £10, child £5

10

This triangle is equilateral. Find x and y .



$2x + y = 11$ and $5x - 3y = 11$

Answer $x = 4, y = 3$

11

A rectangle has a perimeter of 34 cm. Its length is 7 cm more than its width. Find the length of its diagonal.

length 12, width 5, then $\sqrt{144 + 25}$

Answer 13 cm

12

Twice the first number plus the second number is 26. The first number is 4 more than the second. Find the two numbers.

add the equations: $3x = 30$

Answer 10 and 6

13

4 teas and 3 coffees cost £11.90. 2 teas and 5 coffees cost £13.30. Find the cost of a tea and of a coffee.

double the second: $4x + 10y = 26.60$,
then $7y = 14.70$

Answer tea £1.40, coffee £2.10

14

Two straight lines cross. One angle is $(2x + y)^\circ$, the angle opposite it is 100° and the angle next to it is $(x + 3y)^\circ$. Find x and y .

$2x + y = 100$ and $x + 3y = 80$

Answer $x = 44, y = 12$

15

A plumber charges a call out fee plus an hourly rate. A 2 hour job costs £110 and a 5 hour job costs £200. How much does a 3.5 hour job cost?

3 more hours cost £90, so £30 an hour
and a £50 fee

Answer £155

16

Jo solves $x + y = 10$ and $x - y = 4$ and gets $x = 3, y = 7$. Explain how you can tell she is wrong, and find the right answer.

$3 - 7 = -4$, not 4: her values do not fit
the second equation

Answer $x = 7, y = 3$