

# Simultaneous Equations

ANSWERS

1

Solve the simultaneous equations

$$2x + y = 11$$

$$x + y = 7$$

$$\text{extra tiles} = 11 - 7 = 4$$

Subtract:  $x = 4$

$$x = 4$$

Substitute:  $(4) + y = 7$ , so  $y = 3$

Answer  $x = 4, y = 3$

2

Solve the simultaneous equations

$$3x + y = 14$$

$$x + y = 6$$

$$\text{extra tiles} = 14 - 6 = 8$$

Subtract:  $2x = 8$

$$x = 4$$

Substitute:  $(4) + y = 6$ , so  $y = 2$

Answer  $x = 4, y = 2$

3

Solve the simultaneous equations

$$2x + 3y = 16$$

$$2x + y = 8$$

$$\text{extra tiles} = 16 - 8 = 8$$

Subtract:  $2y = 8$

$$y = 4$$

Substitute:  $2x + (4) = 8$ , so  $x = 2$

Answer  $x = 2, y = 4$

4

Solve the simultaneous equations

$$4x + y = 23$$

$$x + y = 8$$

$$\text{extra tiles} = 23 - 8 = 15$$

Subtract:  $3x = 15$

$$x = 5$$

Substitute:  $(5) + y = 8$ , so  $y = 3$

Answer  $x = 5, y = 3$

5

Solve the simultaneous equations

$$3x + 2y = 19$$

$$x + 2y = 9$$

Subtract:  $2x = 10$

$$x = 5$$

Substitute:  $(5) + 2y = 9$ , so  $y = 2$

Answer  $x = 5, y = 2$

6

Solve the simultaneous equations

$$5x + 2y = 24$$

$$3x + 2y = 16$$

Subtract:  $2x = 8$

$$x = 4$$

Substitute:  $3(4) + 2y = 16$ , so  $y = 2$

Answer  $x = 4, y = 2$

7

2 adult tickets and 1 child ticket cost £25. 1 adult ticket and 1 child ticket cost £16. Find the cost of each ticket.

the difference is 1 adult ticket

Answer adult £9, child £7

8

Two numbers add up to 20. Their difference is 4. Find the two numbers.

$x + y = 20$  and  $x - y = 4$

Answer 12 and 8

# Simultaneous Equations further practice

ANSWERS

9

Solve the simultaneous equations

$$4x + 3y = 29$$

$$x + 3y = 14$$

subtract:  $3x = 15$

$$5 + 3y = 14, \text{ so } y = 3$$

Answer  $x = 5, y = 3$

10

Solve the simultaneous equations

$$3x + y = 17$$

$$2x - y = 8$$

add:  $5x = 25$

$$15 + y = 17, \text{ so } y = 2$$

Answer  $x = 5, y = 2$

11

3 bags of compost and 2 plant pots cost £19. 1 bag of compost and 2 plant pots cost £9. Find the cost of a bag of compost and the cost of a plant pot.

subtract: 2 bags cost £10

then 2 pots cost £4

Compost £5

Plant pot £2

12

Solve the simultaneous equations

$$y = 2x + 1$$

$$3x + y = 16$$

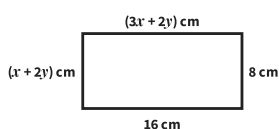
$3x + 2x + 1 = 16$

$$5x = 15, \text{ so } y = 7$$

Answer  $x = 3, y = 7$

13

This shape is a rectangle. Find  $x$  and  $y$ .



$$3x + 2y = 16 \text{ and } x + 2y = 8$$

Answer  $x = 4, y = 2$

14

Solve the simultaneous equations

$$2x + 3y = 13$$

$$x + y = 5$$

double the second:  $2x + 2y = 10$

subtract:  $y = 3$

Answer  $x = 2, y = 3$

15

2 notebooks and 3 pens cost £5.50. 1 notebook and 2 pens cost £3.25. Find the cost of a notebook and the cost of a pen.

double the second: £6.50

subtract: 1 pen costs £1

Notebook £1.25

Pen £1

16

Leah solves

$$5x + 2y = 22$$

$$3x + 2y = 14$$

She subtracts and writes  $2x = 36$ , so  $x = 18$ . What has Leah done wrong? Find the right answer.

she added 22 and 14;  $22 - 14 = 8$

$$2x = 8, \text{ so } x = 4$$

Answer  $x = 4, y = 1$