



Solving simultaneous equations using a graph

This method is easier, but for various reasons is less likely to come up in the exam. The solution to two simultaneous equations is the point where the graphs of each equation cross each other. To find this, you need to be able to draw the graphs.

Example

Solve graphically the simultaneous equations y = 3x - 2y = 6 - x

Solution

<u>Step 1</u> – draw the two lines y = 3x - 2 and y = 6 - x using the method on page 32.

<u>Step 2</u> – write down the point where the two graphs cross (the point of intersection)

Answer: the graphs cross each other at the point (2, 4), so the answer is x = 2, y = 4

Exercise 1

1. a) Copy and complete the tables below.

Table 1 : y = 9 - x

Table 2:
$$y = x - 1$$

x	0	3	7
у		6	

x	2	5	7
у	1		

b) Plot the points from table 1. Join them carefully with a straight line.

c) Plot the points from table 2 on the same graph. Join them with a straight line.

d) Write down the coordinates of the points where the lines cross.



Copy and complete the tables below. a)

Table 1 : y = 8 - x

Table 2 : y = x - 2

x	0	3	7	x	2	5	7
у		5		у	0		

b) Plot the points from table 1. Join them carefully with a straight line.

c) Plot the points from table 2 on the same graph. Join them with a straight line.

d) Write down the coordinates of the points where the lines cross.

Repeat the questions above for 3.

a)	y = 7 - x	and	y = x - 1	(b)	y = 14 - x	and	y = x - 8
c)	y = x - 3	and	y = 15 - x	(d)	y = x - 7	and	y = 17 - x
e)	y = 12 - x	and	y = x - 4	(f)	y = 30 - x	and	y = x - 10
g)	y = 18 - x	and	y = x - 12	(h)	y = 11 - x	and	y = x - 5
i)	x + y = 10	and	x - y = 4	(j)	x - y = 9	and	x + y = 17

- Solve the following simultaneous equations "graphically". 4.
 - x + 3y = 6x + 2y = 8x + y = 6**(b)** (c) a) 2x + y = 83x + y = 9x - y = 2

Draw axes with x and y from 0 to 8

Draw axes with *x* and *y* from 0 to 9 Draw axes with x from 0 to 8 and y from -2 to 4

d)
$$2x + 3y = 12$$

 $x + y = 5$ (e) $3x + 4y = 24$
 $3x + 2y = 18$ (f) $5x + y = 10$
 $x - y = -4$

Draw axes with *x* and *y* from 0 to 7

Draw axes with x and y from 0 to 9

Draw axes with x from -4 to 4 and y from 0 to 10

2.

5. Find the value of x and y by drawing the graphs of the following pairs of equations.

a)	3y - x = 9	(b)	2x - 3y = 6	(c)	x + 2y = 10
	x + y = 11		x + 2y = 10		2x + y = 8
d)	x - 2y = -2	(e)	x - y = 7	(f)	3x + 2y = 6
	2x - y = 2		3x - 2y = 24		x - 2y = 10
g)	2y - x = 8	(h)	x + y = 2	(i)	x - 2y = 3
	3y + x = 17		2x - y = 4		x + y = 0
j)	2y - 3x = 0	(k)	x - y = 2	(1)	x + y = 0
	x - y = -2		2x + 3y = 4		2x + 3y = 6
m)	2x + 3y = 4	(n)	3x - 2y = 3	(0)	5x - y = 6
	x - 2y = 9		x + y = -4		3x + 2y = 1

One method that is guaranteed to always work is to multiply to get the same coefficient at the start of each equation and to take them away. However you may need to be careful with negative numbers in this method.

Example 1a: using a method involving taking away

Solve algebraically the system of equations $\frac{3x - 2y = 11}{2x + 5y = 1}$

Solution	$3x - 2y = 11_{x^2}$
Step One – Multiply through each equation by the number at the start	2x + 5y = 1
of the other equation	$2x + 5y = 1_{\times 3}$
e.g. in this example, we multiply the top equation by 2, and	
the bottom equation by 3	6x - 4y = 22
	6x + 15y = 3

	-4y-15y -19y	= 19
6x	+15y	= 3
6x	-4y	= 22

<u>Step Three</u> – solve the resulting equation: -19y = 19, so y = -1

<u>Step Four</u> – substitute this value for y back into one of the original equations (either one will do). In this example, we will use the top one:

$$3x - 2y = 11$$
$$3x - 2 \times -1 = 11$$
$$3x + 2 = 11$$
$$3x = 9$$
$$x = 3$$
Answer: $x = 3, y = -1$

Step Five - check your answer works by substituting into the second equation.

Alternative strategy: adding. If the equation has both a positive and negative sign in the middle, a better strategy can be to get the same coefficient in the middle and to *add* the equations.

Example 1b – same question as Example 1a but using a method involving a	adding		
3x - 2y = 11			
Solve algebraically the system of equations $2x + 5y = 1$			
Solution		3x - 2y =	11,5
<u>Step One</u> – Multiply through each equation by the number in front y in the other equation	of	2x + 5y =	1 _{×2}
e.g. in this example, we multiply the top equation by 5, and	1		
the bottom equation by 2	15	x - 10y =	55
	4	x + 10y =	2
<u>Step Two</u> – Add the two equations to eliminate the y terms	15 <i>x</i>	-10y	= 55
	4 <i>x</i>	+10y	= 2
	15x + 4x		55+2
	19 <i>x</i>		= 57
<u>Step Three</u> – solve the resulting equation: $19x = 57$, so $x = 3$			

<u>Step Four</u> – substitute this value for x back into one of the original equations (either one will do). In this example, we will use the top one:

$$3x - 2y = 11$$
$$3 \times 3 - 2y = 11$$
$$9 - 2y = 11$$
$$-2y = 11 - 9$$
$$-2y = 2$$
$$y = -1$$

Answer: x = 3, y = -1

Step Five - check your answer works by substituting into the other equation.

Exercise 2

1. Solve each pair of equations below using the method of substitution.

a)	y = x and	3x - y = 10	(b)	y = x and	5x - y = 4
c)	y = 2x and	5x + y = 14	(d)	y = 2x and	2x + 3y = 24
e)	y = 3x + 1	and $y = x + 7$	(f)	y = 5x - 4	and $y = 2x + 11$

- 2. Solve the following pairs of simultaneous equations:
 - a) x + y = 4x - y = 2 (b) x + y = 9x - y = 5 (c) x + y = 7x - y = 3
 - **d**) x + y = 1x - y = 3 (e) x + y = 3x - y = 9 (f) x + y = -1x - y = 9
 - **g**) x + y = -5 (**h**) x + y = -14 (**i**) x + y = -18x - y = -1 x - y = -8 x - y = 2

3. Solve the following pairs of simultaneous equations:

a)
$$\frac{2x+4y=24}{7x-2y=4}$$
 (b) $\frac{4a-3b=18}{2a+6b=-6}$ (c) $\frac{2e+7f=26}{8e-5f=38}$

d)
$$5x + y = -2$$

 $3x + 2y = 3$ (e) $2x - 3y = 10$
 $3x - 6y = 18$ (f) $4p + 3q = 1$
 $8p + 5q = -1$

g)
$$2g+3h=1$$

 $5g-2h=-26$ (h) $-2x+3y=6$
 $9x-7y=-1$ (i) $2u+4v=-16$
 $11u-7v=-1$

j)
$$2x-8y=0$$

 $5x-5y=15$ (k) $3p+2q=-11$
 $4p+3q=-14$ (l) $10a-3b=46$
 $6a-8b=40$

4. Solve the following pairs of simultaneous equations:

2e + f = 1x + 3y = 17a-3b=6**(b) (c)** a) 3x - 2y = -45e - 2f = -203a + b = 85x + 3y = 72x - 5y = -142p + 3q = 6d) **(e) (f)** 4p + q = -8x - 2y = -54x + y = 03x - 2y = 25u - 4v = 102g + h = 11g) **(h) (i)** 7g - 8h = 96x + 5y = -39u - 2v = 222x = 3y + 53p - 2q + 7 = 04a + b - 30 = 0(**k**) **(l)** j) x + 5y = 94p + q = -26a + 5b - 38 = 0

5. Solve the following pairs of simultaneous equations:

- **a)** 2x + y = 15 (**b**) 3x + 2y = 32 (**c**) 5x + 3y = 26x - y = 6 x - 2y = 8 2x - 3y = 2
- d) 3x + y = 9x + y = 5 (e) 4x + y = 112x + y = 5 (f) 7x + 2y = 362x + 2y = 16
- g) 2x 5y = -21 (h) 3x + 8y = 23 (i) 3x + 4y = 103x + 10y = 56 x - 4y = 1 6x + 5y = 17
- j) 5x 2y = 16 (k) 7x + 3y = -13 (l) 3x 5y = 83x + 4y = 20 3x + y = -5 x - 7y = 8

6. Solve the following pairs of simultaneous equations:

a)	5x + 2y = 9 $2x - 3y = -4$	(b)	4x + 5y = 7 $7x - 3y = 24$	(c)	5x + 2y = 14 $4x - 5y = -2$
d)	3x + y = 16 $2x + 3y = 13$	(e)	8x - 3y = 19 $3x - 2y = 1$	(f)	5x + 3y = 19 $7x - 4y = 43$
g)	2x - 5y = 21 $3x + 2y = 3$	(h)	2x - 3y = 17 $7x - 4y = 40$	(i)	8x + 2y = 23 $5x + 6y = 31$
j)	2x + 3y = 7 $4x + 5y = 12$	(k)	7x + 2y = 11 $6x - 5y = -4$	(1)	7x - 5y = 35 $9x - 4y = 45$

You will also be expected to write your own equations from a real-life situation.

Example 2 – a real life situation

- 3 pencils and 2 books cost £10.30.
- 2 pencils and 3 books cost £15.20.
- a) Write down a pair of equations to represent this situation
- b) Solve these equations algebraically to find the cost of one book and one pencil.

Solution

a) The equations are
$$3p + 2b = 10 \cdot 30$$
$$2p + 3b = 15 \cdot 20$$

 $3p + 2b = 10 \cdot 30_{\times 2}$ $2p + 3b = 15 \cdot 20_{\times 3}$

b) Following the same steps as in the last example:

$$6p + 4b = 20 \cdot 60$$
$$6p + 9b = 45 \cdot 60$$

$$- \frac{6p}{4b} + 4b = 20 \cdot 60$$

- $\frac{6p}{4b} + 9b = 45 \cdot 60$
 $5b = 25$
 $b = 5$

Substituting back into top equation: $3p + 2 \times 5 = 10 \cdot 30$ $3p + 10 = 10 \cdot 30$ $3p = 0 \cdot 30$ $p = 0 \cdot 10$

Answer: b = 5 and p = 0.10 (remember to double check) However you have to answer the question in a sentence to get the final communication mark – i.e. <u>a book is £5 and a pencil is 10p</u>.

Exercise 3

- 1. Find two numbers whose sum is 56 and whose difference is 16.
- 2. Find two numbers whose sum is 22 and where twice the bigger one minus three times the smaller one is 24.
- **3.** Two numbers are such that twice the smaller plus the larger is equal to 18 and the difference between twice the larger and the smaller is 11.

Find the two numbers.

4. Two numbers are such that three times the larger plus twice the smaller is equal to 31 and the sum of twice the smaller plus the larger is 13.

Find the two numbers.

5. Four chocolate bars and six packets of crisps together cost £3.40. Ten chocolate bars and three packets of crisps cost £4.90.
Form simultaneous equations and solve them to find the cost of each packet of crisps and each bar of chocolate.





Four sandwiches and 3 hot-dogs cost £7.50. Two sandwiches and 4 hot-dogs $cost \pounds 6$. Form simultaneous equations and solve them to find the cost of each sandwich and hot-dog.

7. At *Smith's Stationers*, the cost of a ruler and a pencil together is 57p. The ruler costs 23p more than the pencil.

Fírst

Find the cost of each.

Blear's new album *First Sight* is available on CD and as a download. 8.

5 downloads and 4 CDs cost £97.

3 downloads and 3CDs cost £66

Calculate the cost of the download and of the CD.

9. A photographer produces 2 sizes of print, Standard and Jumbo. A customer who orders 24 standard and 5 jumbo prints pays £7.79 Another customer pays £8.60 for 20 standard and 8 jumbo prints. How much would I have to pay for 1 standard and 1 jumbo print?

10. There are 2 types of ticket on sale for a football match – Side Stand and Centre Stand. You are sent to buy tickets for various members of your and you pay £71.75 for 4 Side and 3 Centre tickets. Your friend pays £75.25 for 2 Side and 5 Centre tickets. What is the price for each type of ticket?





11. Two small glasses and five large glasses together contain 915 ml.

One small glass and three large glasses together hold 530 ml.

How much does each glass hold?





On a camping holiday a group of 30 students take 3 frame tents and 2 ridge tents.

Another group of 25 students take 2 frame tents and 3 ridge tents.

How many people does each type of tent hold ?

- 13. A magazine pays different rates for *Star Letters* and *Readers' Letters*.
 In June the magazine editor paid out £195 for 3 Star Letters and 8 Readers' Letters.
 In July £215 was paid out for 2 Star Letters and 11 Readers' Letters.
 How much does the magazine pay for each type of letter?
- 14. Brian is a potter and is making 2 different sizes of vase.Five small vases and four large ones require 17 kg of clay.Three small vases and two large vases take 9.4 kg of clay.How much clay is needed for each size of vase?



15. Karen is in charge of ordering the

lunches in the office where she works.

She keeps a note of what she orders and the total costs.

She thinks she has been wrongly charged on one of the days.

By forming and solving pairs of equations, find out if she is correct or not.

	Burger	Chicken	Total
	Meals	Meals	Cost(£)
Monday	7	8	29.70
Tuesday	3	12	30.30
Wednesday	8	3	21.35
Thursday	4	7	20.85
Friday	6	6	23.70
Saturday	5	10	30.00

8y

16. Look at the two rectangles opposite.



The smaller one has a perimeter of 60cm.

The larger one has a perimeter of twice the smaller.

- a) Form two equations and solve themsimultaneously to find the values of *x* and *y*.
- **b**) Hence calculate the area of the smaller rectangle.
- **17.** A van is carrying eight identical boxes and five identical parcels.
 - a) If 3 boxes and 2 parcels weigh a total of 22kg and 4 boxes and 3 parcels
 w 30kg, find the weight of an individual box and a single parcel.
 - **b**) What is the total weight carried by the van?
- **18.** 3 pounds of butter and 4 pints of milk costs £3.84.

5 pounds of butter and 7 pints of milk costs £6.48.

Find the cost of a pound of butter and a single pint of milk.



weigh

- 19. In a certain factory, the basic rate of pay is £4.50 per hour, with overtime at £6.40.
 Paul's total wage for a certain week was £215.80.
 If he worked a total of 45 hours in all, how many hours did he work at the basis rate?
- 20. At a concert 500 tickets were sold. Cheap tickets cost £5 whereas more expensive ones cost £9. If the total receipts were £3 220, how many cheap tickets were sold?
- **21.** John saves money by putting every 50p and every 20p coin he receives in a box. After a while he discovers that he has 54 coins amounting to £17.10.

How many of each coin does he have?

Exercise 4

1. A small printing company sends out letters to customers every day.

On Monday they sent out 20 first class letters and 15 second class letters and the charge for postage was $\pounds 19.50$.

On Tuesday they sent out 18 first class letters and 25 second class letters and the charge was £23.30.

How much will it cost on Wednesday to send 10 first class letters and 30 second class?

- 2. A concert hall sells two types of tickets, stall tickets and balcony tickets. When **all** seats are sold the concert hall holds a total of 640 people.
 - a) Let *s* be the number of stall tickets and *b* the number of balcony tickets.From the information above write down an equation connecting *s* and *b*.
 - b) On a particular night a concert is sold out (all seats are taken) with stall tickets priced at £8.50 and balcony tickets at £12.20. The total takings at the box office for that night was £6143.
 Erom this information write down a second equation connecting s and h

From this information write down a second equation connecting s and b.

c) Hence find how many stall and balcony seats are in this concert hall.

- In a fast food restaurant Ian buys 3 burgers and 4 portions of French fries and it costs £5.64.
 Sarah buys 2 burgers and 3 portions of French fries and it costs £4.01.
 Jack had a voucher to receive one burger and one portion of fries for free.
 How much would it cost Jack for 5 burgers and 3 portions of French fries?
- A hotel owner is buying some new duvets for his hotel.
 One week he bought 7 double duvets and 12 single duvets which cost £168.
 The next week he bought 4 double duvets and 9 singles for £111.
 The hotel owner was given a 14% discount on his next order for 5 double duvets and 5 single duvets.

How much did he pay for this third order?

- 5. Find the point of intersection of the lines with equations: 5x 2y = 16 and 3x + 5y = -9
- 6. Clare has baked 60 scones to sell at the school fayre. Some are fruit scones (f) and some are treacle scones (t).
 - **a**) Write down an equation using f and t to illustrate this information.

She sells the fruit scones for 25p and the treacle scones for 20p each. She sells all the scones for a total of $\pounds 13.25$.

- **b**) Write down another equation using f and t to illustrate this information.
- c) Hence, find **algebraically** the number of treacle scones Clare sold.
- 7. At the funfair coloured tokens are awarded as prizes in some of the games. These tokens can be saved up and exchanged for larger items.

3 green tokens and 4 red tokens have a total value of 26 points.

5 green tokens and 2 red tokens have a total value of 20 points.

Dave has 10 green tokens and 10 red tokens.

Does he have enough points to exchange for a large soft toy with a points value of 75?



- 8. In a week Peter downloads 5 tracks and 4 films and pays £21.23.
 In the same week Frank downloads 7 tracks and 3 films and pays £18.49.
 Calculate how much Richard would pay if he downloaded 3 tracks and 2 films.
- 9. Solve, algebraically, the equations 3x + 2y = 13x = y + 1
- **10.** Find the point of intersection of the lines with equations: 3x 4y = 182y - 5x = -16
- **11.** In the Garden centre there are 2 types of plants on special offer.







Carly bought 3 Rose bushes and 2 Poppy plants which cost £15.23 Steph paid £26.71 for 4 Poppy plants and 5 Rose bushes. How much would Sally pay for a Rose bush and 3 Poppy plants?

12. Peter is buying new furniture for his flat.Two sofas and one chair will cost him £1145.For £1310 he can buy one sofa and three chairs.Find the cost of one sofa and the cost of one chair.

Eric orders goods from a mail-order company. 5 books and 2 CDs cost £40.80.
2 books and 3 CDs cost £37.78. Each order includes £2.95 post and packing regardless of the size of the order.

How much would it cost Eric to have 3 books and 1CD and have them delivered?

14. Shereen goes shopping in the summer sales.
The store has an advert in the window.
Shereen buys 2 tops and 3 skirts and pays £33.90. Her friend Nadia buys 3 tops and 4 skirts and £46.70.
Another friend Kay buys 2 tops and 2 skirts. How much does she pay?

15. Find the point of intersection of the straight lines with these equations.

4x + 3y = 7

y = 2x + 9

Answers

Exercise 1

1.	a)	Tables completed		eted	Table 1:	e 1: 9, 6, 2		Table 2:	
	b) and (c) Graphs drawn								
	d)	(5, 4)							
2	-)	T-1-1-		1	T-1.1. 1.	0 5 1	T-1-1-	2.	0 2 5
Z .	a)	a) Tables		eled	Table 1:	0, 5, 1	Table	rable 2:	
	b) an	d (c)	Graphs	draw	n				
	d)	(5, 3)							
3.	a)	(4, 3)		(b)	(11, 3)	(c)	(9, 6)	(d)	(12, 5)
	e)	(8, 4)		(f)	(20, 10)	(g)	(15, 3)	(h)	(8, 3)
	i)	(7, 3)		(j)	(13, 4)				
4.	a)	(2, 4)		(b)	(2, 3)	(c)	(3, 1)	(d)	(3, 2)
	e)	(4, 3)		(f)	(1, 5)				
5.	a)	(6, 5)		(b)	(6, 2)	(c)	(2, 4)	(d)	(2, 2)
	e)	(10, 3	3)	(f)	(4, -3)	(g)	(2, 5)	(h)	(2, 0)
	i)	(1, -1)	(j)	(4, 6)	(k)	(2, 0)	(l)	(-6, 6)
	m)	(5, -2	2)	(n)	(-1, -3)	(0)	(1, -1)		

Exercise 2

1. a)
$$x = 5$$
 and $y = 5$ (b) $x = 1$ and $y = 1$ (c) $x = 2$ and $y = 4$
d) $x = 3$ and $y = 6$ (e) $x = 3$ and $y = 10$ (f) $x = 5$ and $y = 21$

2. a)
$$x = 3$$
 and $y = 1$ (b) $x = 7$ and $y = 2$ (c) $x = 5$ and $y = 2$
d) $x = 2$ and $y = -1$ (e) $x = 6$ and $y = -3$ (f) $x = 4$ and $y = -5$
g) $x = -3$ and $y = -2$ (h) $x = -11$ and $y = -3$ (i) $x = -8$ and $y = -10$

3. a)
$$x = 2$$
 and $y = 5$ (b) $a = 3$ and $b = 2$ (c) $e = 6$ and $f = 2$
d) $x = -1$ and $y = 3$ (e) $x = 2$ and $y = -2$ (f) $p = -2$ and $q = 3$
g) $g = -4$ and $h = 3$ (h) $x = 3$ and $y = 4$ (i) $u = -2$ and $v = -3$
j) $x = 4$ and $y = 1$ (k) $p = -5$ and $q = 2$ (l) $a = 4$ and $b = -2$

4. a)
$$x = 2$$
 and $y = 5$ (b) $a = 3$ and $b = -1$ (c) $e = -2$ and $f = 5$
d) $x = -1$ and $y = 4$ (e) $x = 3$ and $y = 4$ (f) $p = -3$ and $q = 4$

g)
$$g = 8$$
 and $h = -5$ (h) $x = 7$ and $y = -2$ (i) $u = 2$ and $v = -2$

i)
$$x = 4$$
 and $y = 1$ (k) $p = -1$ and $q = 2$ (l) $q = 8$ and $b = -2$

j)
$$x = 4$$
 and $y = 1$ (**k**) $p = -1$ and $q = 2$ (**l**) $a = 8$ and $b = -2$

5. a)
$$x = 7$$
 and $y = 1$ (b) $x = 10$ and $y = 1$ (c) $x = 4$ and $y = 2$
d) $x = 2$ and $y = 3$ (e) $x = 3$ and $y = -1$ (f) $x = 4$ and $y = 4$
g) $x = 2$ and $y = 5$ (h) $x = 5$ and $y = 1$ (i) $x = 2$ and $y = 1$
j) $x = 4$ and $y = 2$ (k) $x = -1$ and $y = -2$ (l) $x = 1$ and $y = -1$

a)	x = 1 and $y = 2$	(b)	x = 3 and $y = -1$	(c)	x = 2 and $y = 2$
d)	x = 5 and $y = 1$	(e)	x = 5 and $y = 7$	(f)	x = 5 and $y = -2$
g)	x = 3 and $y = -3$	(h)	x = 4 and $y = -3$	(i)	x = 2 and $y = 3.5$
j)	x = 0.5 and $y = 2$	(k)	x = 1 and $y = 2$	(l)	x = 5 and $y = 0$

Exercise 3

6.

- **1.** 36 and 20 **2.** 18 and 4 **3.** 8 and 5 **4.** 9 and 2
- 5. Chocolate costs 40p and crisps cost 30p
- 6. Sandwich costs £1.20 and hotdog costs 90p.
- 7. Ruler costs 49p and pencil costs 26p.
- 8. Download is £9 and CD is £13
- 9. Standard print is 21p and Jumbo costs 55p.
- **10**. Centre costs £11.25 and Side costs £9.50
- **11**. Large glass holds 145ml and small holds 95ml.
- **12**. Frame tent holds 8 and ridge tent holds 3.
- 13. Reader's letter pays $\pounds 15$ and Star letter pays $\pounds 25$.
- 14. Small takes 1.8kg and the large takes 2kg.
- **15**. Thursday should have been $\pounds 21.95$.
- **16.** (a) 4x + 4y = 60; 6x + 16y = 120; x = 12 and y = 3 (b) 144cm²
- 17. (a) Box weighs 6kg and parcel weighs 2kg. (b) 58kg
- **18.** Milk is 24p and butter is 96p.
- **19.** 38 hours basic and 7 hours overtime
- **20.** 320 cheaper tickets were sold
- **21.** $33 \times 20p$ coins and $21 \times 50p$ coins

Exercise 4

- **1.** £21
- **2.** a) s + b = 640 (b) $8 \cdot 5s + 12 \cdot 2b = 6143$

c) 450 stalls tickets and 190 balcony tickets

- **3.** £5.02
- **4.** £81.70
- **5.** (2, -3)
- **6. a**) f + t = 60 (**b**) 25f + 20t = 1325
 - c) Clare sold 35 treacle scones
- 7. 75 points are needed tokens give only 70 points so not enough.
- **8.** £11.01.
- 9. x = 3 and y = 2
- **10.** (2, -3)
- **11.** £9.72
- **12.** Sofa costs £425 and chair costs £295.
- **13.** £23.87
- **14.** £25.60
- **15.** (-2, 5)