

**Check out**

You should now be able to ...

✓ Solve linear equations with brackets and algebraic fractions.	7	1
✓ Solve simultaneous equations by elimination.	7	2 - 5
✓ Solve simultaneous equations by drawing graphs.	8	6
✓ Solve linear inequalities with one variable.	7	7, 8
✓ Find approximate solutions to equations using trial-and-improvement.	6	9

**Test it**

Questions

✓ Solve linear equations with brackets and algebraic fractions.	7	1
✓ Solve simultaneous equations by elimination.	7	2 - 5
✓ Solve simultaneous equations by drawing graphs.	8	6
✓ Solve linear inequalities with one variable.	7	7, 8
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**Language Meaning Example**

<b>Simultaneous equations</b>	A set of equations that have a common solution.	$y = 3x - 8$ $y = 2x - 4$ has solutions $x = 4, y = 4$
<b>Elimination</b>	A method to solve simultaneous equations by addition or subtraction.	$y = 3x - 8 \Rightarrow 0 = x - 4$ $y = 2x - 4$ so $x = 4$
<b>Intersection</b>	A point at which two lines cross.	$y = 3x - 8$ and $y = 2x - 4$ intersect at the point (4, 4)
<b>Inequality</b>	A relationship between two unequal quantities.	$4 < 7$
<b>Solution set</b>	The set of solutions to an inequality or equation.	$3 < y \leq 7$ has integer solution set {4, 5, 6, 7}

1 Solve these equations.

- a  $3a - 40 = -1$
- b  $2(3b + 9) = 3(27 + b)$
- c  $5 - 2c = 11 - 6c$
- d  $\frac{d+7}{3} + 4 = \frac{5d}{4}$
- e  $\frac{5e+7}{5} = \frac{3-10e}{7}$
- f  $\frac{7f-1}{3} = \frac{13-14f}{5}$

2 Solve these pairs of simultaneous equations.

- a  $x + 3y = 23$   
 $x - 2y = -12$
- b  $5x + 2y = 7$   
 $7x + 2y = 5$
- c  $2x - 4y = -5$   
 $8x - 4y = -2$
- d  $x - 12y = -10$   
 $x + 12y = 2$

3 Solve these pairs of simultaneous equations.

- a  $2x + y = 8$   
 $x - 3y = 11$
- b  $3x + 5y = 23$   
 $x + 7y = 45$
- c  $x - y = 3$   
 $4x - 7y = 39$
- d  $13x - 2y = 53$   
 $12x + 4y = 46$

4 Solve these pairs of simultaneous equations.

- a  $2x + 3y = 21$
- b  $5x + 5y = 20$
- c  $3x - 2y = 12$
- d  $2x + 7y = 38$
- e  $3x - 7y = 5$
- f  $15x - 13y = 0$
- g  $4x - 3y = 3.5$
- h  $10x + 39y = 22$

5 Sam's mum was 25 when he was born and the sum of their ages now is 53 years. How old is Sam now?

6 Plot the graphs and use to solve the pairs of simultaneous equations.

- a  $y = 2x - 3$
- b  $5x + 3y = 15$
- c  $x + y = 9$
- d  $y = x - 1$

7 Solve these inequalities and illustrate your solutions on a number line.

- a  $6(2x + 1) \leq 5x - 1$
- b  $15 - 2x > 3$

8 Find all the integers that satisfy both  $3x \leq 21$  and  $2x + 5 > 13$ .

9 Use a trial-and-improvement method to solve these equations to 2dp.

- a  $x^3 - x = 1610$
- b  $\sqrt{3x + 2x} = 5$

**What next?**

0 - 4	Your knowledge of this topic is still developing. To improve look at Formative test: 3C-10; MyMaths: 1057, 1161, 1162, 1174, 1175, 1176, 1182, 1236, 1319, 1928, 1929 and 1930
5 - 7	You are gaining a secure knowledge of this topic. To improve look at InvisiPen: 232, 236, 237, 241, 243, 244 and 245
8 - 9	You have mastered this topic. Well done, you are ready to progress!

Score