

# National 5: Simultaneous Equations

**Q1** Choose which letter to find first so that you do not have to multiply *either* equation through.

a)  $x + y = 4$   
 $3x + y = 10$

b)  $2x - y = -1$   
 $x + y = 7$

c)  $s - 2t = 6$   
 $s + 3t = -4$

d)  $x - y = -5$   
 $-x + 2y = 8$

e)  $3a - 2b = 11$   
 $5a - 2b = 13$

f)  $5x + y = 17$   
 $-5x - 7y = 1$

**Q2** Decide which variable to eliminate so that you only have to multiply *one* equation through.

a)  $2x + y = 13$   
 $3x + 2y = 21$

b)  $4m - 3n = 13$   
 $5m + 6n = 26$

c)  $4x - 2y = -18$   
 $x + 3y = 13$

d)  $p - 2q = -11$   
 $-2p + 5q = 29$

e)  $2x - 5y = 13$   
 $4x - 2y = 18$

f)  $6a + 4b = -1$   
 $-2a - 7b = 6$

**Q3** In these questions, you will need to multiply both equations through.

a)  $2a + 3b = 13$   
 $5a + 2b = 16$

b)  $4x - 5y = 10$   
 $5x + 3y = -6$

c)  $4x - 2y = 18$   
 $3x + 3y = 18$

d)  $3m - 2n = 5$   
 $-2m + 5n = -7$

e)  $2x - 5y = 23$   
 $7x - 3y = 8$

f)  $5a + 2b = 14$   
 $-2a - 7b = 13$

g)  $5p - 3q = 1$   
 $-2p + 5q = 11$

h)  $9k - 2h = 37$   
 $4k - 5h = 37$

i)  $5x + 4y = 0$   
 $-2x - 7y = 27$

**Q4** Find, algebraically, the point of intersection of these two straight lines:

$$\begin{aligned}9x - 2y &= 64 \\4x - 5y &= 49\end{aligned}$$

**Q5** Three Chewee bars and four Yummi bars cost £1.20. Two Chewee bars and three Yummi bars cost 85p. Find the price of one Chewee bar and the price of one Yummi bar.

**Q6** Kirsty bought two adult tickets and three child tickets at a total cost of £22.50. Mark bought one adult ticket and two child tickets at a total cost of £13. Find the price of one adult ticket and the price of one child ticket.

**Q7** Lee bought 3 bags of cement and 5 bags of sand. Their total weight was 45 kg. Rachel bought 4 bags of cement and 3 bags of sand. Their total weight was 38 kg. Find the weight of one bag of cement and the weight of one bag of sand.