N5 Maths: Simultaneous Equations

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

a) $\begin{aligned} x + y &= 4 \\ 3x + y &= 10 \end{aligned}$

b) $\begin{aligned} 2x - y &= -1 \\ x + y &= 7 \end{aligned}$

c) $\begin{aligned} s - 2t &= 6 \\ s + 3t &= -4 \end{aligned}$

d) $\begin{aligned} x - y &= -5 \\ -x + 2y &= 8 \end{aligned}$

e) $\begin{aligned} 3a - 2b &= 11 \\ 5a - 2b &= 13 \end{aligned}$

f) $\begin{aligned} 5x + y &= 17 \\ -5x - 7y &= 1 \end{aligned}$

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

a) $\begin{aligned} 2x + y &= 13 \\ 3x + 2y &= 21 \end{aligned}$

b) $\begin{aligned} 4m - 3n &= 13 \\ 5m + 6n &= 26 \end{aligned}$

c) $\begin{aligned} 4x - 2y &= -18 \\ x + 3y &= 13 \end{aligned}$

d) $\begin{aligned} p - 2q &= -11 \\ -2p + 5q &= 29 \end{aligned}$

e) $\begin{aligned} 2x - 5y &= 13 \\ 4x - 2y &= 18 \end{aligned}$

f) $\begin{aligned} 6a + 4b &= -1 \\ -2a - 7b &= 6 \end{aligned}$

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

a) $\begin{aligned} 2a + 3b &= 13 \\ 5a + 2b &= 16 \end{aligned}$

b) $\begin{aligned} 4x - 5y &= 10 \\ 5x + 3y &= -6 \end{aligned}$

c) $\begin{aligned} 4x - 2y &= 18 \\ 3x + 3y &= 18 \end{aligned}$

d) $\begin{aligned} 3m - 2n &= 5 \\ -2m + 5n &= -7 \end{aligned}$

e) $\begin{aligned} 2x - 5y &= 23 \\ 7x - 3y &= 8 \end{aligned}$

f) $\begin{aligned} 5a + 2b &= 14 \\ -2a - 7b &= 13 \end{aligned}$

g) $\begin{aligned} 5p - 3q &= 1 \\ -2p + 5q &= 11 \end{aligned}$

h) $\begin{aligned} 9k - 2h &= 37 \\ 4k - 5h &= 37 \end{aligned}$

i) $\begin{aligned} 5x + 4y &= 0 \\ -2x - 7y &= 27 \end{aligned}$

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.

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