

1 Checking a solution

Ali says $x = 4, y = 3$ is the solution of

$$2x + 5y = 23$$

$$3x - y = 8$$

a) Is Ali right? Show how you know.

b) In another pair, $x = 3$ and $4x + 3y = 27$. Find y .

a) $8 + 15 = 23$ ✓, $12 - 3 = 9$, not 8

Ali is wrong

b) $12 + 3y = 27, y = 5$

2 Adding to eliminate

Solve the simultaneous equations

$$3x + 2y = 18$$

$$5x - 2y = 14$$

add: $8x = 32, x = 4$

$12 + 2y = 18$

$x = 4, y = 3$

3 Subtracting to eliminate

Solve the simultaneous equations

$$2x + 5y = 24$$

$$2x + y = 8$$

subtract: $4y = 16, y = 4$

$2x + 4 = 8$

$x = 2, y = 4$

4 Add or subtract?

P

$$4x + 3y = 26$$

$$x + 3y = 11$$

Q

$$2x - y = 7$$

$$3x + y = 13$$

a) To eliminate y , do you add or subtract in P? In Q?

b) Solve pair Q.

a) P subtract (same signs), Q add

b) $5x = 20, x = 4$

$x = 4, y = 1$

Simultaneous equations revision mat answers

Foundation A

5 Multiplying first

Solve the simultaneous equations

$$2x + 3y = 13$$

$$5x + y = 13$$

$\times 3: 15x + 3y = 39$

subtract: $13x = 26, x = 2$

$x = 2, y = 3$

6 Sum and difference

a) Two numbers add up to 47. Their difference is 15. Find the two numbers.

b) Maya is 6 years older than Tom. Their ages add up to 40. How old is each of them?

a) $2x = 62: 31$ and 16

b) $2m = 46: \text{Maya } 23, \text{ Tom } 17$

7 Forming equations

At a climbing wall, 2 adult tickets and 3 child tickets cost £41. 2 adult tickets and 1 child ticket cost £29.

a) Write two equations, using a and c .

b) Find the cost of an adult ticket and a child ticket.

a) $2a + 3c = 41, 2a + c = 29$

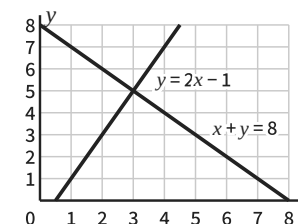
b) subtract: $2c = 12, c = 6$

adult £11.50, child £6

8 Solving with graphs

a) Use the graph to solve $y = 2x - 1$ and $x + y = 8$.

b) Why do $y = 2x - 1$ and $y = 2x + 3$ have no solution?



a) $x = 3, y = 5$

b) same gradient, so parallel