Solve linear simultaneous equations where you need to multiply both equations

Maths

Mrs Dennett

Solve equations where you need to multiply both equations

1. What could you multiply these equations by to get the same coefficients for x or y?

$$5p + 4q = 14$$
$$2p + 5q = 9$$

2. Use the method you found in question 1 to solve the pair of equations.

$$5p + 4q = 14$$
$$2p + 5q = 9$$

What was the same/different about your methods?

Which was easier?

Solve equations where you need to multiply both equations

3. Solve these pairs of equations.

a) $3x - 5y = 31$
$x + 3y = 1$

b) $2x + 7y = 49$
$5x + 3y = 35.5$

c) $x - y = -3$
$2(4x - y) = 6$

d) $-x + 2y = 3$
$4x - 9y = -16$

4. I think of two numbers.

When I add them together, I get 13

When I multiply one of them by 4 and the other by 3 and add them together, I get 45

What are the numbers?

Answers

Solve equations where you need to multiply both equations

1. What could you multiply these equations by to get the same coefficients for x or y?

$$5p + 4q = 14$$
$$2p + 5q = 9$$

×2 and ×5
×5 and ×4

2. Use the methods you found in question 1 to solve the pair of equations.

p = 2 and q = 1

$$5p + 4q = 14$$
$$2p + 5q = 9$$

What was the same/different about your methods?

Same solutions, both require subtraction to eliminate one variable
Different order of finding p and q
×2 and ×5 – find q first
×5 and ×4 – find p first

Which was easier?

×2 and ×5 – smaller numbers
Are you more efficient at calculating with certain numbers?

Solve equations where you need to multiply both equations

3. Solve these pairs of equations.

a) $3x - 5y = 31$
$x + 3y = 1$

$x = 7$ and $y = -2$

b) $2x + 7y = 49$
$5x + 3y = 35.5$

$x = 3.5$ and $y = 6$

c) $x - y = -3$
$2(4x - y) = 6$

$x = 2$ and $y = 5$

d) $-x + 2y = 3$
$4x - 9y = -16$

$x = 5$ and $y = 4$

4. I think of two numbers.

When I add them together, I get 13.

When I multiply one of them by 4 and the other by 3 and add them together, I get 45.

What are the numbers?

6 and 7