Simultaneous equations: substitution

1

Solve the simultaneous equations.

(1) $\boxed{y} = x + 2$

(2) $4x + \boxed{3y} = 20$

Substitute (1) into (2)

$4x + 3(x + 2) = 20$

$x =$ ____, $y =$ ____

Check ____

2

Solve the simultaneous equations.

(1) $\boxed{y} = 2x - 1$

(2) $3x + \boxed{2y} = 19$

Substitute (1) into (2)

$x =$ ____, $y =$ ____

Check ____

3

Solve the simultaneous equations.

(1) $\boxed{y} = 3x + 2$

(2) $x + \boxed{2y} = 18$

$x =$ ____, $y =$ ____

Check ____

4

Solve the simultaneous equations.

(1) $y = 5x - 4$

(2) $2x + 3y = 22$

$x =$ ____, $y =$ ____

Check ____

5

Solve the simultaneous equations.

(1) $x = 2y + 1$

(2) $3x + 4y = 23$

$x =$ ____, $y =$ ____

Check ____

6

Solve the simultaneous equations.

(1) $y = 2x + 7$

(2) $5x + 2y = -4$

$x =$ ____, $y =$ ____

Check ____

7

Leo solves these simultaneous equations.

(1) $y = x + 6$

(2) $4x + 2y = 30$

He writes $4x + 2x + 6 = 30$.

Explain his mistake.

Then solve the equations.

Answer ____

8

Which pair would you solve by substitution? Explain why.

Then solve that pair.

A (1) $y = 3x - 1$

(2) $2x + y = 14$

B (1) $2x + 3y = 12$

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

Answer ____

Simultaneous equations: substitution *further practice*

9

Solve the simultaneous equations.

(1) $y = 2x - 5$

(2) $3x + 4y = 13$

Answer _____

10

Solve the simultaneous equations.

(1) $b = 2a + 3$

(2) $3a + 2b = 20$

Answer _____

11

The lines $y = 3x - 1$ and $y = x + 5$ cross at the point P. Find the coordinates of P.

Answer _____

12

Solve the simultaneous equations.

(1) $x = 5 - 2y$

(2) $3x + 4y = 13$

Answer _____

13

A rectangle's length is 4 cm more than twice its width. Its perimeter is 44 cm. Let w be its width and l its length, in cm. Find its width and length.

Answer _____

14

An adult ticket costs £3 more than a child ticket. 2 adult tickets and 3 child tickets cost £36. Let a be the cost of an adult ticket and c a child ticket, in pounds. Find both costs.

Answer _____

15

Write a pair of simultaneous equations with the solution $x = 2$, $y = 5$, where one equation starts $y =$.

Answer _____

16

Kai says you can't solve $3x + y = 10$ and $2x + 3y = 16$ by substitution, because neither equation starts $y =$. Show that you can, and solve them.

Answer _____