

GCSE Maths: Simultaneous equations: elimination (Foundation): worksheet

GCSE Maths - Quadratic and Simultaneous Equations - Foundation - Lesson 14.5

Name: _____

Date: _____

Score: _____

14 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch14-quadratics-simultaneous/foundation/simultaneous-equations-elimination/

Exercise 14E Simultaneous equations: elimination Non-calculator

1 Solve each pair of simultaneous equations. Just add or subtract: no multiplying is needed.

(a) $x + y = 9$ and $x - y = 3$

Answer: _____

(b) $2x + y = 11$ and $x + y = 7$

Answer: _____

(c) $3x + y = 14$ and $x + y = 8$

Answer: _____

(d) $x + 2y = 9$ and $x + y = 6$

Answer: _____

(e) $4x + 3y = 27$ and $4x - y = 7$

Answer: _____

(f) $5x + 2y = 24$ and $3x - 2y = 8$

Answer: _____

2 Solve the simultaneous equations by adding the two equations.

$x + y = 5$

$x - y = 1$

Answer: _____

3 Solve the simultaneous equations by subtracting.

$3x + y = 10$

$x + y = 4$

Answer: _____

4 Solve the simultaneous equations

$2x + 3y = 12$

$2x + y = 8$

Answer: _____

5 Solve the simultaneous equations

$5x + 2y = 19$

$3x - 2y = 5$

Answer: _____

6 Solve each pair. Multiply **one** equation first.

(a) $2x + y = 8$ and $3x - 2y = 5$

Answer:

(b) $x + 3y = 11$ and $2x - y = 1$

Answer:

(c) $3x + 2y = 14$ and $x - y = 3$

Answer:

(d) $5x - y = 13$ and $2x + 3y = 12$

Answer:

(e) $x + 2y = 8$ and $3x + 4y = 20$

Answer:

(f) $4x + y = 14$ and $3x - 2y = 5$

Answer:

7 Solve each pair. Multiply both equations.

(a) $2x + 3y = 13$ and $3x + 2y = 12$

Answer:

(b) $3x + 4y = 24$ and $2x + 3y = 17$

Answer:

(c) $5x + 2y = 19$ and $3x + 5y = 19$

Answer:

(d) $4x - 3y = 6$ and $3x + 2y = 13$

Answer:

(e) $7x + 2y = 20$ and $3x - 5y = -9$

Answer:

(f) $2x - 5y = -4$ and $3x + 2y = 13$

Answer:

8 Solve the simultaneous equations.

$x + y = 10$

$3x + y = 22$

Answer:

9 Solve the simultaneous equations

$4x + 3y = 18$

$x + 3y = 9$

Answer:

10 Rearrange each pair into the form $ax + by = c$, then solve.

(a) $2x = 13 - y$ and $x + 3y = 14$

Answer:

(b) $y = 8 - x$ and $3x - y = 4$

Answer:

(c) $2x + 3y = 19$ and $x = y + 2$

Answer:

(d) $3x = 11 - y$ and $x + 2y = 7$

Answer:

- 11** Maya has the equations $4x + 3y = 18$ and $x + 3y = 9$. She adds them but both letters are still there. Explain why adding does not help, and solve the equations correctly.

Answer:

- 12** Explain why the simultaneous equations $x + y = 5$ and $x + y = 7$ have no solution.

Answer:

- 13** Solve the simultaneous equations and then write down the value of $x + y$.

$$3x + 5y = 21$$

$$2x + 5y = 19$$

Answer:

- 14** $x + y = 10$ and $x - y = 2$. Without finding x or y first, show that $x^2 - y^2 = 20$. Then check by solving the equations.

Answer: