

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

GCSE Maths - Quadratic and Simultaneous Equations - Foundation - Lesson 14.6

Name: _____

Date: _____

Score: _____

11 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-substitution/

Exercise 14F Simultaneous equations: substitution Non-calculator

1 Solve by substitution. One letter is already the subject.

(a) $y = x + 3$ and $x + y = 11$

Answer: _____

(b) $y = 2x$ and $3x + y = 15$

Answer: _____

(c) $y = x - 2$ and $2x + y = 10$

Answer: _____

(d) $y = 3x - 1$ and $x + y = 7$

Answer: _____

(e) $x = y + 4$ and $x + 2y = 10$

Answer: _____

(f) $x = 2y$ and $x + y = 9$

Answer: _____

2 Solve the simultaneous equations

$y = x + 5$

$x + y = 9$

Answer: _____

3 Solve the simultaneous equations

$x = y + 2$

$2x + y = 13$

Answer: _____

4 Solve by substitution. Remember the brackets.

(a) $y = 2x + 1$ and $3x + 2y = 16$

Answer: _____

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

Answer: _____

(c) $x = y - 1$ and $3x + 2y = 7$

Answer: _____

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

Answer:

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

Answer:

(f) $x = 7 - 2y$ and $3x - y = 7$

Answer:

5 Rearrange one of the equations, then solve by substitution.

(a) $x + y = 8$ and $2x - y = 4$

Answer:

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

Answer:

(c) $3x + y = 10$ and $x - 2y = -6$

Answer:

(d) $x - y = 3$ and $2x + 3y = 16$

Answer:

6 Solve the simultaneous equations

$$x + y = 12$$

$$3x + y = 20$$

Answer:

7 Solve the simultaneous equations

$$2x - y = 1$$

$$x + y = 8$$

Answer:

8 Explain which method (substitution or elimination) looks easier for $y = x + 7$ and $2x + y = 13$. Then solve the equations.

Answer:

9 Tom is solving $y = 2x - 1$ and $4x - 3y = 7$. He writes " $4x - 3 \times 2x - 1 = 7$ ". Explain his mistake, then solve the equations correctly.

Answer:

10 Solve by substitution, and then check your answer using elimination.

$$3x + 2y = 12$$

$$x + y = 5$$

Answer:

11 The lines $y = 2x + 1$ and $y = ax - 5$ cross at the point where $x = 3$. Find the value of a .

Answer: