

Solve the following systems using the substitution method.

1.
$$\begin{aligned} 2x + 8y &= 12 \\ x - 2y &= 0 \end{aligned}$$

2.
$$\begin{aligned} x + y &= 7 \\ 2x + y &= 5 \end{aligned}$$

3.
$$\begin{aligned} x - 4y &= 1 \\ 2x - 8y &= 2 \end{aligned}$$

4.
$$\begin{aligned} 2y + x &= 2 \\ 2x + 3y &= 6 \end{aligned}$$

5.
$$\begin{aligned} 2x + y &= -16 \\ x - 2y &= -28 \end{aligned}$$

6.
$$\begin{aligned} 4y &= 8 \\ 2x + 5y &= 11 \end{aligned}$$

7.
$$\begin{aligned} x + y &= 2 \\ -2x + 4y &= -19 \end{aligned}$$

8.
$$\begin{aligned} x + 2y &= 4 \\ 3x - 4y &= -3 \end{aligned}$$

9.
$$\begin{aligned} 2x + y &= 4 \\ 2y &= -4x + 8 \end{aligned}$$

10.
$$\begin{aligned} x + y &= 2 \\ x + y &= 5 \end{aligned}$$

11.
$$\begin{aligned} y &= 3x \\ 3x + 3y &= 4 \end{aligned}$$

12.
$$\begin{aligned} x + y &= 6 \\ 2y &= -2x + 2 \end{aligned}$$

Solving Systems by Substitution Answer Key

Solve the following systems using the substitution method.

1. $2x + 8y = 12$
 $x - 2y = 0$

$(2, 1)$

2. $x + y = 7$
 $2x + y = 5$

$(-2, 9)$

3. $x - 4y = 1$
 $2x - 8y = 2$

infinite solutions

4. $2y + x = 2$
 $2x + 3y = 6$

$(6, -2)$

5. $2x + y = -16$
 $x - 2y = -28$

$(-12, 8)$

6. $4y = 8$
 $2x + 5y = 11$

$(\frac{1}{2}, 2)$

7. $x + y = 2$
 $-2x + 4y = -19$

$(4.5, -2.5)$

8. $x + 2y = 4$
 $3x - 4y = -3$

$(1, 1.5)$

9. $2x + y = 4$
 $2y = -4x + 8$

infinite solutions

10. $x + y = 2$
 $x + y = 5$

no solution

11. $y = 3x$
 $3x + 3y = 4$

$(\frac{1}{3}, 1)$

12. $x + y = 6$
 $2y = -2x + 2$

no solution