

## Solving Systems of Equations by Elimination

**Solve each system by elimination.**

1) 
$$\begin{aligned} -4x - 2y &= -12 \\ 4x + 8y &= -24 \end{aligned}$$

2) 
$$\begin{aligned} 4x + 8y &= 20 \\ -4x + 2y &= -30 \end{aligned}$$

3) 
$$\begin{aligned} x - y &= 11 \\ 2x + y &= 19 \end{aligned}$$

4) 
$$\begin{aligned} -6x + 5y &= 1 \\ 6x + 4y &= -10 \end{aligned}$$

5) 
$$\begin{aligned} -2x - 9y &= -25 \\ -4x - 9y &= -23 \end{aligned}$$

6) 
$$\begin{aligned} 8x + y &= -16 \\ -3x + y &= -5 \end{aligned}$$

7) 
$$\begin{aligned} -6x + 6y &= 6 \\ -6x + 3y &= -12 \end{aligned}$$

8) 
$$\begin{aligned} 7x + 2y &= 24 \\ 8x + 2y &= 30 \end{aligned}$$

9) 
$$\begin{aligned} 5x + y &= 9 \\ 10x - 7y &= -18 \end{aligned}$$

10) 
$$\begin{aligned} -4x + 9y &= 9 \\ x - 3y &= -6 \end{aligned}$$

11) 
$$\begin{aligned} -3x + 7y &= -16 \\ -9x + 5y &= 16 \end{aligned}$$

12) 
$$\begin{aligned} -7x + y &= -19 \\ -2x + 3y &= -19 \end{aligned}$$

$$13) \begin{cases} 16x - 10y = 10 \\ -8x - 6y = 6 \end{cases}$$

$$14) \begin{cases} 8x + 14y = 4 \\ -6x - 7y = -10 \end{cases}$$

$$15) \begin{cases} -4x - 15y = -17 \\ -x + 5y = -13 \end{cases}$$

$$16) \begin{cases} -x - 7y = 14 \\ -4x - 14y = 28 \end{cases}$$

$$17) \begin{cases} -7x - 8y = 9 \\ -4x + 9y = -22 \end{cases}$$

$$18) \begin{cases} 5x + 4y = -30 \\ 3x - 9y = -18 \end{cases}$$

$$19) \begin{cases} -4x - 2y = 14 \\ -10x + 7y = -25 \end{cases}$$

$$20) \begin{cases} 3x - 2y = 2 \\ 5x - 5y = 10 \end{cases}$$

Handwritten work for problem 21:

$$21) \begin{cases} 5x + 4y = -14 \\ 3x + 6y = 6 \end{cases} \cdot 3$$

$$- \begin{matrix} 15x + 12y = -42 \\ 6x + 12y = 12 \end{matrix}$$


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$$9x = -54 \quad x = -6$$

Substitution:

$$-30 + 4y = -14$$

$$4y = 16$$

$$y = 4$$

Solution:  $(-6, 4)$

$$22) \begin{cases} 2x + 8y = 6 \\ -5x - 20y = -15 \end{cases}$$

Handwritten work for problem 23:

$$23) \begin{cases} -14 = -20y - 7x \\ 10y + 4 = 2x \end{cases}$$

$$-7x - 20y = -14$$

$$2(2x - 10y) = 4$$

$$-7x - 20y = -14$$

$$-4x - 20y = 8$$


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$$-11x = -22$$

$$24) \begin{cases} 3 + 2x - y = 0 \\ -3 - 7y = 10x \end{cases}$$

Handwritten work for problem 24:

$$-14 = -20y - 14$$

$$y = 0$$

Solution:  $(2, 0)$

## Solving Systems of Equations by Elimination

**Solve each system by elimination.**

1) 
$$\begin{aligned} -4x - 2y &= -12 \\ 4x + 8y &= -24 \end{aligned}$$

 $(6, -6)$ 

2) 
$$\begin{aligned} 4x + 8y &= 20 \\ -4x + 2y &= -30 \end{aligned}$$

 $(7, -1)$ 

3) 
$$\begin{aligned} x - y &= 11 \\ 2x + y &= 19 \end{aligned}$$

 $(10, -1)$ 

4) 
$$\begin{aligned} -6x + 5y &= 1 \\ 6x + 4y &= -10 \end{aligned}$$

 $(-1, -1)$ 

5) 
$$\begin{aligned} -2x - 9y &= -25 \\ -4x - 9y &= -23 \end{aligned}$$

 $(-1, 3)$ 

6) 
$$\begin{aligned} 8x + y &= -16 \\ -3x + y &= -5 \end{aligned}$$

 $(-1, -8)$ 

7) 
$$\begin{aligned} -6x + 6y &= 6 \\ -6x + 3y &= -12 \end{aligned}$$

 $(5, 6)$ 

8) 
$$\begin{aligned} 7x + 2y &= 24 \\ 8x + 2y &= 30 \end{aligned}$$

 $(6, -9)$ 

9) 
$$\begin{aligned} 5x + y &= 9 \\ 10x - 7y &= -18 \end{aligned}$$

 $(1, 4)$ 

10) 
$$\begin{aligned} -4x + 9y &= 9 \\ x - 3y &= -6 \end{aligned}$$

 $(9, 5)$ 

11) 
$$\begin{aligned} -3x + 7y &= -16 \\ -9x + 5y &= 16 \end{aligned}$$

 $(-4, -4)$ 

12) 
$$\begin{aligned} -7x + y &= -19 \\ -2x + 3y &= -19 \end{aligned}$$

 $(2, -5)$

$$\begin{aligned} 13) \quad & 16x - 10y = 10 \\ & -8x - 6y = 6 \end{aligned}$$

$$(0, -1)$$

$$\begin{aligned} 14) \quad & 8x + 14y = 4 \\ & -6x - 7y = -10 \end{aligned}$$

$$(4, -2)$$

$$\begin{aligned} 15) \quad & -4x - 15y = -17 \\ & -x + 5y = -13 \end{aligned}$$

$$(8, -1)$$

$$\begin{aligned} 16) \quad & -x - 7y = 14 \\ & -4x - 14y = 28 \end{aligned}$$

$$(0, -2)$$

$$\begin{aligned} 17) \quad & -7x - 8y = 9 \\ & -4x + 9y = -22 \end{aligned}$$

$$(1, -2)$$

$$\begin{aligned} 18) \quad & 5x + 4y = -30 \\ & 3x - 9y = -18 \end{aligned}$$

$$(-6, 0)$$

$$\begin{aligned} 19) \quad & -4x - 2y = 14 \\ & -10x + 7y = -25 \end{aligned}$$

$$(-1, -5)$$

$$\begin{aligned} 20) \quad & 3x - 2y = 2 \\ & 5x - 5y = 10 \end{aligned}$$

$$(-2, -4)$$

$$\begin{aligned} 21) \quad & 5x + 4y = -14 \\ & 3x + 6y = 6 \end{aligned}$$

$$(-6, 4)$$

$$\begin{aligned} 22) \quad & 2x + 8y = 6 \\ & -5x - 20y = -15 \end{aligned}$$

Infinite number of solutions

$$\begin{aligned} 23) \quad & -14 = -20y - 7x \\ & 10y + 4 = 2x \end{aligned}$$

$$(2, 0)$$

$$\begin{aligned} 24) \quad & 3 + 2x - y = 0 \\ & -3 - 7y = 10x \end{aligned}$$

$$(-1, 1)$$