

Cramer's Rule

Use Cramer's Rule to solve each system.

1)
$$\begin{aligned} -2x + 6y &= 4 \\ 5x + y &= 6 \end{aligned}$$

2)
$$\begin{aligned} 2r + 3s &= -12 \\ -6r - 2s &= 7 \end{aligned}$$

3)
$$\begin{aligned} -2x - 4y &= -16 \\ 2x + 4y &= 16 \end{aligned}$$

4)
$$\begin{aligned} a + b &= -4 \\ -3a - 2b &= 14 \end{aligned}$$

5)
$$\begin{aligned} -x - 6y &= -23 \\ -2x + 5y &= 5 \end{aligned}$$

6)
$$\begin{aligned} -3x - y &= -11 \\ 4x - 3y &= 6 \end{aligned}$$

7)
$$\begin{aligned} -3x + 5y &= 7 \\ 2x + 2y &= -6 \end{aligned}$$

8)
$$\begin{aligned} a - b &= -10 \\ -2a - 2b &= 2 \end{aligned}$$

9)
$$\begin{aligned} -2a + 2b &= -12 \\ a - b &= 11 \end{aligned}$$

10)
$$\begin{aligned} -6a + 4b &= 3 \\ 5a - 2b &= -7 \end{aligned}$$

11)
$$\begin{aligned} -a + b &= -5 \\ -5a - 2b + 6c &= -5 \\ -4a - b + 2c &= 8 \end{aligned}$$

12)
$$\begin{aligned} -4a - 2b - c &= -11 \\ -a - 2b &= -6 \\ a - b - 5c &= 5 \end{aligned}$$

13)
$$\begin{aligned} 5x + 2y + 2z &= 9 \\ -6x - 4y - 3z &= -19 \\ x - 2y &= -9 \end{aligned}$$

14)
$$\begin{aligned} 4a + 4c &= 4 \\ 4a - 3b + c &= -14 \\ -2a - 3b - 5c &= -20 \end{aligned}$$

15)
$$\begin{aligned} -4x - 4y - 5z &= -6 \\ -4y + 5z &= -6 \\ x - 2y + 3z &= -1 \end{aligned}$$

16)
$$\begin{aligned} 5x + 3y + 4z &= -3 \\ 4x - 6y - 6z &= 6 \\ 6x + z &= -3 \end{aligned}$$

Cramer's Rule

Use Cramer's Rule to solve each system.

$$\begin{aligned} 1) \quad & -2x + 6y = 4 \\ & 5x + y = 6 \end{aligned}$$

 $(1, 1)$

$$\begin{aligned} 2) \quad & 2r + 3s = -12 \\ & -6r - 2s = 7 \end{aligned}$$

 $\left(\frac{3}{14}, -\frac{29}{7}\right)$

$$\begin{aligned} 3) \quad & -2x - 4y = -16 \\ & 2x + 4y = 16 \end{aligned}$$

Infinitely many solutions

$$\begin{aligned} 4) \quad & a + b = -4 \\ & -3a - 2b = 14 \end{aligned}$$

 $(-6, 2)$

$$\begin{aligned} 5) \quad & -x - 6y = -23 \\ & -2x + 5y = 5 \end{aligned}$$

 $(5, 3)$

$$\begin{aligned} 6) \quad & -3x - y = -11 \\ & 4x - 3y = 6 \end{aligned}$$

 $(3, 2)$

$$\begin{aligned} 7) \quad & -3x + 5y = 7 \\ & 2x + 2y = -6 \end{aligned}$$

 $\left(-\frac{11}{4}, -\frac{1}{4}\right)$

$$\begin{aligned} 8) \quad & a - b = -10 \\ & -2a - 2b = 2 \end{aligned}$$

 $\left(-\frac{11}{2}, \frac{9}{2}\right)$

$$\begin{aligned} 9) \quad & -2a + 2b = -12 \\ & a - b = 11 \end{aligned}$$

No solution.

$$\begin{aligned} 10) \quad & -6a + 4b = 3 \\ & 5a - 2b = -7 \end{aligned}$$

 $\left(-\frac{11}{4}, -\frac{27}{8}\right)$

$$\begin{aligned} 11) \quad & -a + b = -5 \\ & -5a - 2b + 6c = -5 \\ & -4a - b + 2c = 8 \end{aligned}$$

 $(-3, -8, -6)$

$$\begin{aligned} 12) \quad & -4a - 2b - c = -11 \\ & -a - 2b = -6 \\ & a - b - 5c = 5 \end{aligned}$$

 $(2, 2, -1)$

$$\begin{aligned} 13) \quad & 5x + 2y + 2z = 9 \\ & -6x - 4y - 3z = -19 \\ & x - 2y = -9 \end{aligned}$$

 $(-1, 4, 3)$

$$\begin{aligned} 14) \quad & 4a + 4c = 4 \\ & 4a - 3b + c = -14 \\ & -2a - 3b - 5c = -20 \end{aligned}$$

Infinitely many solutions

$$\begin{aligned} 15) \quad & -4x - 4y - 5z = -6 \\ & -4y + 5z = -6 \\ & x - 2y + 3z = -1 \end{aligned}$$

 $\left(\frac{5}{2}, \frac{1}{4}, -1\right)$

$$\begin{aligned} 16) \quad & 5x + 3y + 4z = -3 \\ & 4x - 6y - 6z = 6 \\ & 6x + z = -3 \end{aligned}$$

 $(3, 22, -21)$