

x's cancel
↓

Answer key

x's cancel (7, -1)

1)
$$\begin{aligned} -4x - 2y &= -12 \\ +4x + 8y &= -24 \\ \hline 6y &= -36 \\ y &= -6 \end{aligned}$$

$4x + 8(-6) = -24$
 $4x - 48 = -24$
 $4x = 24$
 $x = 6$

y = -6 ← Plugback into original equation to get x

2)
$$\begin{aligned} 4x + 8y &= 20 \\ -4x + 2y &= -30 \\ \hline 10y &= -10 \\ y &= -1 \end{aligned}$$

$4x + 8(-1) = 20$
 $4x - 8 = 20$
 $4x = 28$
 $x = 7$

3)
$$\begin{aligned} x - y &= 11 \\ 2x + y &= 19 \\ \hline 3x &= 30 \\ x &= 10 \end{aligned}$$

y's cancel
plug in $10 - y = 11$
 $-y = 1$
 $y = -1$

(10, -1)

4)
$$\begin{aligned} 6x + 5y &= 1 \\ 6x + 4y &= -10 \\ \hline y &= -9 \end{aligned}$$

x's cancel
Plugback $6x + 4(-9) = -10$
 $6x - 36 = -10$
 $6x = 26$
 $x = 4.33$

(-1, -1)

5)
$$\begin{aligned} -2x - 9y &= -25 \\ -4x - 4y &= -23 \\ \hline -2x - 9y &= -25 \\ 4x + 9y &= 23 \\ \hline 2x &= 2 \\ x &= 1 \end{aligned}$$

change signs →

plugback $-2(1) - 9y = -25$
 $-2 - 9y = -25$
 $-9y = -23$
 $y = 2.55$

(-1, 3)

6)
$$\begin{aligned} 8x + y &= -16 \\ -3x + y &= -5 \\ \hline 11x &= -11 \\ x &= -1 \end{aligned}$$

change sign →

$8(-1) + y = -16$
 $-8 + y = -16$
 $y = -8$

(-1, -8)

7)
$$\begin{aligned} -6x + 6y &= 6 \\ -6x + 3y &= -12 \\ \hline 6x - 3y &= 12 \\ 3y &= 18 \\ y &= 6 \end{aligned}$$

Change sign →

$-6x + 6(6) = 6$
 $-6x + 36 = 6$
 $-6x = -30$
 $x = 5$

(5, 6)

8)
$$\begin{aligned} 7x + 2y &= 24 \\ -8x - 2y &= -30 \\ \hline -x &= -6 \\ x &= 6 \end{aligned}$$

change sign →

$7(6) + 2y = 24$
 $42 + 2y = 24$
 $2y = -18$
 $y = -9$

(6, -9)

$$\begin{array}{l}
 9) \quad (-2) \\
 \begin{array}{r}
 5x + y = 9 \\
 10x - 7y = -18 \\
 \hline
 -10x - 2y = -18 \\
 \hline
 -9y = -36 \\
 \hline
 -9y = -36 \\
 \hline
 y = 4
 \end{array}
 \end{array}$$

$$\begin{array}{l}
 10x - 7(4) = -18 \\
 10x - 28 = -18 \\
 \hline
 10x = 10 \\
 \hline
 x = 1
 \end{array}$$

$(1, 4)$

$$\begin{array}{l}
 10) \quad (-3) \\
 \begin{array}{r}
 -4x + 9y = 9 \\
 3x - 9y = -18 \\
 \hline
 -x = -9 \\
 \hline
 x = 9
 \end{array}
 \end{array}$$

$$\begin{array}{l}
 -4(9) + 9y = 9 \\
 -36 + 9y = 9 \\
 \hline
 9y = 45 \\
 \hline
 y = 5
 \end{array}$$

$(9, 5)$

$$\begin{array}{l}
 11) \quad (-5) \\
 \begin{array}{r}
 -3x + 7y = 16 \\
 -9x + 5y = 16 \\
 \hline
 9x - 21y = 48 \\
 \hline
 -16y = 64 \\
 \hline
 -16y = 64 \\
 \hline
 y = -4
 \end{array}
 \end{array}$$

$$\begin{array}{l}
 -9x + 5(-4) = 16 \\
 -9x - 20 = 16 \\
 \hline
 -9x = 36 \\
 \hline
 x = -4
 \end{array}$$

$(-4, -4)$

$$\begin{array}{l}
 12) \quad (-3) \\
 \begin{array}{r}
 -7x + y = 19 \\
 -2x + 3y = -19 \\
 \hline
 21x - 3y = 57 \\
 \hline
 19x = 38 \\
 \hline
 19x = 38 \\
 \hline
 x = 2
 \end{array}
 \end{array}$$

$$\begin{array}{l}
 -2(2) + 3y = -19 \\
 -4 + 3y = -19 \\
 \hline
 3y = -15 \\
 \hline
 y = -5
 \end{array}$$

$(2, -5)$