

(11) $x + y = 8$
 $y = 3x$

$x + 3x = 8$

$$\begin{array}{r|l} 4x = 8 & \\ \hline 4 & 4 \\ \hline x = 2 & \end{array}$$

$y = 3x$
 $y = 3(2)$
 $y = 6$

(2, 6)

(12) $2x + 2y = 38$
 $y = x + 3$

$2x + 2(x + 3) = 38$

$2x + 2x + 6 = 38$

$$\begin{array}{r|l} 4x + 6 = 38 & \\ -6 & -6 \\ \hline 4x = 32 & \\ \hline 4 & 4 \\ \hline x = 8 & \end{array}$$

$y = x + 3$
 $y = 8 + 3$
 $y = 11$

(8, 11)

(13) $x + 3 = y$
 $3x + 4y = 7$

$3x + 4(x + 3) = 7$

$3x + 4x + 12 = 7$

$$\begin{array}{r|l} 7x + 12 = 7 & \\ -12 & -12 \\ \hline 7x = -5 & \\ \hline 7 & 7 \\ \hline x = -\frac{5}{7} & \end{array}$$

$-\frac{5}{7} + 3 = y$

$2\frac{2}{7} = y$

($-\frac{5}{7}, 2\frac{2}{7}$)

(14) $y = 8 - x$
 $7 = 2 - y$

$7 = 2 - (8 - x)$

$7 = 2 - 8 + x$

$$\begin{array}{r|l} 7 = -6 + x & \\ +6 & +6 \\ \hline 13 = x & \end{array}$$

$y = 8 - x$
 $y = 8 - 13$
 $y = -5$

(13, -5)

(15) $y = -2x + 6$
 $3y - x + 3 = 0$

$3(-2x + 6) - x + 3 = 0$

$-6x + 18 - x + 3 = 0$

$$\begin{array}{r|l} -7x + 21 = 0 & \\ -21 & -21 \\ \hline -7x = -21 & \\ \hline -7 & -7 \\ \hline x = 3 & \end{array}$$

$y = -2(3) + 6$
 $y = -6 + 6$
 $y = 0$

(3, 0)

(16) $3x + 2y = 23$
 $\frac{1}{2}x - 4 = y$

$3x + 2(\frac{1}{2}x - 4) = 23$

$3x + x - 8 = 23$

$4x - 8 = 23$

$$\begin{array}{r|l} 4x = 31 & \\ +8 & +8 \\ \hline 4x = 31 & \\ \hline 4 & 4 \\ \hline x = \frac{31}{4} & \end{array}$$

$3(\frac{31}{4}) + 2y = 23$

$$\begin{array}{r|l} \frac{93}{4} + 2y = 23 & \\ -\frac{93}{4} & -\frac{93}{4} \\ \hline 2y = -\frac{1}{4} & \\ \hline 2 & 2 \\ \hline y = -\frac{1}{8} & \end{array}$$

($\frac{31}{4}, -\frac{1}{8}$)

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$$\begin{aligned} y - 2x &= 3 \\ 3x - 2y &= 5 \end{aligned}$$

$$\begin{array}{r|l} y - 2x & = 3 \\ +2y & +2y \\ \hline y & = 2x + 3 \end{array}$$

$$3x - 2(2x + 3) = 5$$

$$\begin{aligned} 3x - 4x - 6 &= 5 \\ -x - 6 &= 5 \\ +6 &+6 \\ \hline -x &= 11 \\ -1 &-1 \\ \hline x &= -11 \end{aligned}$$

$$\begin{aligned} y - 2(-11) &= 3 \\ y + 22 &= 3 \\ -22 &-22 \\ \hline y &= -19 \end{aligned}$$

(-11, -19)

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$$\begin{aligned} 4x &= 3y - 2 \\ 18 &= 3x + y \end{aligned}$$

$$\begin{array}{r} 18 = 3x + y \\ -3x \quad -3x \\ \hline -3x + 18 = y \end{array}$$

$$4x = 3(-3x + 18) - 2$$

$$\begin{array}{r} 4x = -9x + 54 - 2 \\ +9x \quad +9x \\ \hline 13x = 52 \\ \frac{13}{13} \quad \frac{52}{13} \\ \hline x = 4 \end{array}$$

$$\begin{aligned} 4(4) &= 3y - 2 \\ 16 &= 3y - 2 \\ +2 &+2 \\ \hline 18 &= 3y \\ \frac{18}{3} &= \frac{3y}{3} \\ 6 &= y \end{aligned}$$

(4, 6)

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

$$\begin{array}{r} 2 = 2y - x \\ -2 \quad -2 \\ \hline 0 = 2y - x - 2 \\ +x \quad +x \\ \hline x = 2y - 2 \end{array}$$

$$x = 2y - 2$$

$$23 = 5y - 4(2y - 2)$$

$$\begin{array}{r} 23 = 5y - 8y + 8 \\ -8 \quad -8 \\ \hline 15 = -3y + 8 \\ -3 \quad -3 \\ \hline -5 = y \end{array}$$

$$2 = 2(-5) - x$$

$$\begin{array}{r} 2 = -10 - x \\ +10 \quad +10 \\ \hline 12 = -x \\ -1 \quad -1 \\ \hline -12 = x \end{array}$$

(-12, -5)

$$\begin{aligned} (20) \quad & 4y + 3 = 3y + x \\ & \underline{2x + 4y = 18} \end{aligned}$$

$$\begin{array}{r|l} 4y + 3 & 3y + x \\ -3y & -3y \\ \hline y + 3 & x \end{array}$$

$$\begin{aligned} 2(y + 3) + 4y &= 18 \\ 2y + 6 + 4y &= 18 \end{aligned}$$

$$\begin{array}{r|l} 6y + 6 & 18 \\ -6 & -6 \\ \hline 6y & 12 \\ \underline{6} & \underline{6} \\ y & = 2 \end{array}$$

$$\begin{aligned} 4(2) + 3 &= 3(2) + x \\ 8 + 3 &= 6 + x \\ 11 &= 6 + x \\ -6 & \quad -6 \\ \hline 5 &= x \end{aligned}$$

$$\underline{\underline{(5, 2)}}$$

$$\begin{aligned} (21) \quad & 7x - 2y = 1 \\ & \underline{2y = x - 1} \end{aligned}$$

$$\begin{array}{r|l} 2y & x - 1 \\ +1 & +1 \\ \hline 2y + 1 & x \end{array}$$

$$\begin{aligned} 7(2y + 1) - 2y &= 1 \\ 14y + 7 - 2y &= 1 \end{aligned}$$

$$\begin{array}{r|l} 12y + 7 & 1 \\ -7 & -7 \\ \hline 12y & -6 \\ \underline{12} & \underline{12} \\ y & = -\frac{1}{2} \end{array}$$

$$\begin{aligned} 2\left(-\frac{1}{2}\right) &= x - 1 \\ -1 &= x - 1 \\ +1 & \quad +1 \\ \hline 0 &= x \end{aligned}$$

$$\underline{\underline{(0, -\frac{1}{2})}}$$

$$\begin{aligned} (22) \quad & 4y - x = 5 + 2y \\ & \underline{3x + 7y = 24} \end{aligned}$$

$$\begin{array}{r|l} 4y - x & 5 + 2y \\ -2y & -2y \\ \hline 2y - x & 5 \\ +x & +x \\ \hline 2y & x + 5 \\ -5 & -5 \\ \hline 2y - 5 & x \end{array}$$

$$\begin{aligned} 3(2y - 5) + 7y &= 24 \\ 6y - 15 + 7y &= 24 \end{aligned}$$

$$\begin{array}{r|l} 13y - 15 & 24 \\ +15 & +15 \\ \hline 13y & 39 \\ \underline{13} & \underline{13} \\ y & = 3 \end{array}$$

$$3x + 7(3) = 24$$

$$\begin{array}{r|l} 3x + 21 & 24 \\ -21 & -21 \\ \hline 3x & 3 \\ \underline{3} & \underline{3} \\ x & = 1 \end{array}$$

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