

* Could use graphing calculator as well

Mixed Review Solving Systems of Equations

$$\begin{aligned} 1. \quad y &= 10 - x \\ y &= x + 1 \end{aligned}$$

$$\begin{array}{r} 10 - x = x + 1 \\ +x \quad +x \\ \hline 10 = 2x + 1 \\ -1 \quad -1 \\ \hline 9 = 2x \\ \frac{9}{2} \quad \frac{2}{2} \end{array}$$

$$\begin{aligned} 4.5 &= x \\ y &= 4.5 + 1 \\ y &= 5.5 \end{aligned}$$

$(4.5, 5.5)$ ✓

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

$$\begin{array}{r} 2x - 3 = 1 \\ +3 +3 \\ \hline 2x = 4 \\ x = 2 \end{array}$$

$(2, -3)$ ✓

$$\begin{aligned} 7. \quad 18x + 24y &= 288 \\ + \quad 2(-16x - 12y &= -172) \\ + \quad -32x - 24y &= -344 \end{aligned}$$

$$\begin{array}{r} -14x = -56 \\ \frac{-14}{-14} \quad \frac{-56}{-14} \end{array}$$

$$x = 4$$

$$18(4) + 24y = 288$$

$$72 + 24y = 288$$

$$24y = 216$$

$$y = 9$$

$(4, 9)$ ✓

$$\begin{aligned} 2. \quad 2x + y &= -5 \quad y = -2x - 5 \\ 3x + 3y &= 9 \end{aligned}$$

$$\begin{array}{r} 3x + 3(-2x - 5) = 9 \\ 3x - 6x - 15 = 9 \\ -3x - 15 = 9 \\ +15 \quad +15 \\ \hline -3x = 24 \\ x = -8 \end{array}$$

$$\begin{aligned} y &= -2(-8) - 5 \\ y &= 16 - 5 \\ y &= 11 \end{aligned}$$

$(-8, 11)$ ✓

$$\begin{aligned} 5. \quad 5x + 4 &= y \\ y - 3x &= 7 \end{aligned}$$

$$\begin{array}{r} 5x + 4 - 3x = 7 \\ 2x + 4 = 7 \\ 2x = 3 \\ x = 1.5 \end{array}$$

$$\begin{aligned} 5(1.5) + 4 &= y \\ 7.5 + 4 &= y \\ 11.5 &= y \end{aligned}$$

$(1.5, 11.5)$ ✓

$$\begin{aligned} 8. \quad 3x + y &= -1 \quad y = -3x - 1 \\ 2x + 6 &= -3y \end{aligned}$$

$$\begin{array}{r} 2x + 6 = -3(-3x - 1) \\ 2x + 6 = 9x + 3 \\ -2x \quad -2x \end{array}$$

$$6 = 7x + 3$$

$$3 = 7x$$

$$\frac{3}{7} = x$$

$$y = -3\left(\frac{3}{7}\right) - 1$$

$$y = -\frac{9}{7} - 1$$

$$y = -\frac{16}{7}$$

$\left(\frac{3}{7}, -\frac{16}{7}\right)$ ✓

* graphing Calc.

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

$(6, 2)$ ✓

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

$$\begin{array}{r} 3y = 9 \\ y = 3 \end{array}$$

$$\begin{aligned} x + 2(3) &= 3 \\ x + 6 &= 3 \end{aligned}$$

$$x = -3$$

$(-3, 3)$ ✓

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

$$\begin{array}{r} 2x = 6 \\ x = 3 \end{array}$$

$$\begin{array}{r} 3 + y = -2 \\ -3 \quad -3 \end{array}$$

$$y = -5$$

$(3, -5)$ ✓

$$\begin{array}{r} 10. \quad 3x + 8y = 11 \quad \times 2 \\ \quad \quad (2x + 5y = 18) \quad -3 \end{array}$$

$$\begin{array}{r} 6x + 16y = 22 \\ -6x - 15y = -54 \\ \hline y = -32 \end{array}$$

$$2x + 5(-32) = 18$$

$$2x - 160 = 18$$

$$\frac{2x}{2} = \frac{178}{2}$$

$$x = 89$$

$$\boxed{(89, -32)} \checkmark$$

$$\begin{array}{r} 11. \quad 6x - y = 0 \quad y = 6x \\ \quad \quad 3x + 4y = 18 \end{array}$$

$$3x + 4(6x) = 18$$

$$3x + 24x = 18$$

$$27x = 18$$

$$x = \frac{2}{3}$$

$$y = 6\left(\frac{2}{3}\right)$$

$$y = 4$$

$$\boxed{\left(\frac{2}{3}, 4\right)} \checkmark$$

$$\begin{array}{r} 12. \quad 2y - 3x = 12 \\ \quad \quad -2y + 6x = -5 \end{array}$$

$$3x = 7$$

$$x = \frac{7}{3}$$

$$2y - 3\left(\frac{7}{3}\right) = 12$$

$$2y - 7 = 12$$

$$\frac{2y}{2} = \frac{19}{2}$$

$$y = 9.5$$

$$\boxed{\left(\frac{7}{3}, 9\frac{1}{2}\right)} \checkmark$$

$$\begin{array}{r} 13. \quad y = 4x + 11 \\ \quad \quad 3x - 2y = -7 \end{array}$$

$$3x - 2(4x + 11) = -7$$

$$3x - 8x - 22 = -7$$

$$-5x = 15$$

$$x = -3$$

$$y = 4(-3) + 11$$

$$y = -12 + 11$$

$$y = -1$$

$$\boxed{(-3, -1)} \checkmark$$

$$14. \quad 3y - 4x = 2$$

$$8x = 6y - 4$$

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

$$\begin{array}{r} + \quad 8x + 6y = 4 \\ - \quad 8x + 6y = 4 \\ \hline 0 = 0 \end{array}$$

Infinite Solutions

$$\begin{array}{r} 15. \quad 2x + y = -5 \\ \quad \quad + (x + 3y = 25) \quad -2 \end{array}$$

$$-2x - 6y = -50$$

$$-5y = -55$$

$$y = 11$$

$$2x + 11 = -5$$

$$2x = -16$$

$$x = -8$$

$$\boxed{(-8, 11)} \checkmark$$

$$16. \quad 2x - 2y = 16$$

$$\begin{array}{r} + \quad 2(3x + y = 4) \\ \quad \quad 6x + 2y = 8 \end{array}$$

$$8x = 24$$

$$x = 3$$

$$3(3) + y = 4$$

$$9 + y = 4$$

$$y = -5$$

$$\boxed{(3, -5)} \checkmark$$

$$17. \quad 2x + \frac{1}{3}y = -1$$

$$-2\left(x - \frac{1}{4}y = -8\right)$$

$$\begin{array}{r} + \quad -2x + \frac{1}{2}y = 16 \\ \hline \end{array}$$

$$\frac{5}{6}y = 15$$

$$y = 18$$

$$2x + \frac{1}{3}(18) = -1$$

$$2x + 6 = -1$$

$$-6 \quad -6$$

$$2x = -7$$

$$x = -3.5$$

$$\boxed{(-3.5, 18)} \checkmark$$

$$18. \quad 0.4x + 0.2y = 0.4$$

$$+ \quad -2(0.2x - 0.3y = 0.4)$$

$$-0.4x + 0.6y = 0.8$$

$$\frac{.8y}{.8} = \frac{0.4}{.8}$$

$$y = -.5$$

$$y = -.5$$

$$.4x + .2(-.5) = .4$$

$$.4x + -.1 = .4$$

$$.4x = .5$$

$$x = 1.25$$

$$\boxed{(1.25, -.5)} \checkmark$$