

Solve these simultaneous equations.

$$\begin{aligned} \textcircled{1} \quad & 3x + 2y = 12 \\ -) \quad & 2x + 2y = 10 \\ \hline & x = 2 \end{aligned}$$

when $x = 2$

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

$$6 + 2y = 12$$

$$6 - 6 + 2y = 12 - 6$$

$$\frac{2y}{2} = \frac{6}{2}$$

$$y = 3$$

$$\therefore x = 2, y = 3$$

$$\textcircled{3} \quad 6e + 2f = 68$$

$$\begin{aligned} +) \quad & e - 2f = -19 \\ \hline & 7e = 49 \\ & 7 \quad 7 \\ \hline & e = 7 \end{aligned}$$

when $e = 7$

$$6(7) + 2f = 68$$

$$42 + 2f = 68$$

$$42 - 42 + 2f = 68 - 42$$

$$\frac{2f}{2} = \frac{26}{2}$$

$$f = 13$$

$$\therefore e = 7, f = 13$$

$$\begin{aligned} \textcircled{2} \quad & 5p + 5q = 35 \\ -) \quad & 2p + 5q = 26 \end{aligned}$$

$$\frac{3p}{3} = \frac{9}{3}$$

$$p = 3$$

when $p = 3$

$$5(3) + 5q = 35$$

$$15 + 5q = 35$$

$$15 - 15 + 5q = 35 - 15$$

$$\frac{5q}{5} = \frac{20}{5}$$

$$q = 4$$

$$\therefore p = 3, q = 4$$

$$\begin{aligned} \textcircled{4} \quad & \begin{matrix} \times 3 \\ -4x + 5y = 14 \end{matrix} \\ & \begin{matrix} \times -4 \\ 3x + 2y = 1 \end{matrix} \end{aligned}$$

$$-12x + 15y = 42$$

$$-) \quad -12x - 8y = -4$$

$$\frac{23y}{23} = \frac{46}{23}$$

$$y = 2$$

when $y = 2$

$$-4x + 5(2) = 14$$

$$-4x + 10 = 14$$

$$-4x + 10 - 10 = 14 - 10$$

$$\frac{-4x}{-4} = \frac{4}{-4}$$

$$x = -1$$

$$\therefore y = 2, x = -1$$

$$\begin{aligned} \textcircled{5} \quad & \begin{matrix} \times 7 \\ -4x + 8y = 0 \end{matrix} \\ & \begin{matrix} \times -4 \\ 7x + 4y = 20 \end{matrix} \end{aligned}$$

$$\begin{aligned} -28x + 56y &= 0 \\ -) -28x + 16y &= -80 \\ \hline 40y &= 80 \\ 40 & \quad 40 \\ y &= 2 \end{aligned}$$

When $y = 2$

$$\begin{aligned} -4x + 8(2) &= 0 \\ -4x + 16 &= 0 \\ -4x + 16 - 16 &= 0 - 16 \\ -4x &= -16 \\ \frac{-4x}{-4} &= \frac{-16}{-4} \\ x &= 4 \end{aligned}$$

$$\therefore y = 2, x = 4$$

$$\begin{aligned} \textcircled{6} \quad & \begin{matrix} \times 7 \\ 2x - 4y = 12 \end{matrix} \\ & \begin{matrix} \times 2 \\ 7x - 2y = 6 \end{matrix} \end{aligned}$$

$$\begin{aligned} 14x - 28y &= 84 \\ \rightarrow 14x - 4y &= 12 \\ \hline -24y &= 72 \\ -24 & \quad -24 \\ y &= -3 \end{aligned}$$

When $y = -3$

$$\begin{aligned} 2x - 4(-3) &= 12 \\ 2x + 12 &= 12 \\ 2x + 12 - 12 &= 12 - 12 \\ 2x &= 0 \\ \frac{2x}{2} &= \frac{0}{2} \\ x &= 0 \end{aligned}$$

$$\therefore y = -3, x = 0$$

Good.

29/1/19.