

Simultaneous Equns

① a)

$$\begin{array}{l} 2x + 3y = 7 \\ x + 2y = 4 \end{array}$$
$$\begin{array}{r} \times 2 \\ \hline 2x + 4y = 8 \end{array}$$
$$\begin{array}{r} 2x + 3y = 7 \\ -(2x + 4y = 8) \\ \hline -y = -1 \end{array}$$
$$y = 1$$
$$x = 2$$

$$x = 2 \quad y = 1$$

② b)

$$\begin{array}{l} 3x + 2y = 1 \\ 5x + y = 4 \end{array}$$
$$\begin{array}{r} \times 2 \\ \hline 10x + 2y = 8 \end{array}$$
$$\begin{array}{r} 3x + 2y = 1 \\ -(10x + 2y = 8) \\ \hline -7x = -7 \end{array}$$
$$x = 1$$
$$5x + y = 4$$
$$5 + y = 4$$
$$y = -1$$

c)

$$\begin{array}{rcl}
 4x & + & 3y = 3 \\
 5x & + & y = 12 \\
 \hline
 5x & + & y = 12 \\
 15 & + & y = 12 \\
 & & y = -3
 \end{array}$$

$$\begin{array}{rcl}
 4x & + & 3y = 3 \\
 15x & + & 3y = 36 \\
 \hline
 -11x & & = -33 \\
 x & = & 3
 \end{array}$$

$$x = 3 \quad y = -3$$

2 a)

$$\begin{array}{rcl}
 2x & - & y = 6 \\
 4x & + & 3y = 22 \\
 \hline
 2x & - & y = 6 \\
 2x & - & 2 = 6 \\
 & & 2x = 8 \\
 & & x = 4
 \end{array}$$

$$\begin{array}{rcl}
 4x & - & 2y = 12 \\
 4x & + & 3y = 22 \\
 \hline
 -5y & = & -10 \\
 y & = & 2
 \end{array}$$

$$x = 4 \quad y = 2$$

2b)

$$\begin{array}{rcl}
 7x + 3y = 8 & & 21x + 9y = 24 \\
 2x + 9y = -14 & & 2x + 9y = -14 \\
 \hline
 \rightarrow 2x + 9y = -14 & \ominus & 19x = 38 \\
 4 + 9y = -14 & & x = 2 \\
 9y = -18 & & \\
 y = -2 & &
 \end{array}$$

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

c)

$$\begin{array}{rcl}
 5x + 2y = 6 & & 25x + 10y = 30 \\
 3x - 10y = 26 & & 3x - 10y = 26 \\
 \hline
 \rightarrow 5x + 2y = 6 & \oplus & 28x = 56 \\
 10 + 2y = 6 & & x = 2 \\
 2y = -4 & & \\
 y = -2 & &
 \end{array}$$

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