

Simultaneous Eqns

Ex1

$$4x + 7y = 5 \quad (1)$$

$$3x + 2y = 7 \quad (2)$$

$$(1) \times 2 \quad 8x + 14y = 10 \quad (3)$$

$$(2) \times 7 \quad 21x + 14y = 49 \quad (4)$$

$$(4) - (3) \quad 13x = 39$$

$$x = \frac{39}{13}$$

$$\underline{x = 3}$$

Sub for x in (2)

$$3(3) + 2y = 7$$

$$9 + 2y = 7$$

$$2y = 7 - 9$$

$$2y = -2$$

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

$$\underline{y = -1}$$

$$\begin{cases} x = 3 \\ y = -1 \end{cases}$$

Ex2

$$8x - 5y = 1 \quad (1)$$

$$4x + 5y = 23 \quad (2)$$

$$(1) + (2) \quad 12x = 24$$

$$x = \frac{24}{12}$$

$$\underline{x = 2}$$

Sub for x in ②

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

$$8 + 5y = 23$$

$$5y = 23 - 8$$

$$5y = 15$$

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

$$\underline{y = 3}$$

$$\begin{cases} x = 2 \\ y = 3 \end{cases}$$

Ex 3

$$5x - 2y = 12 \quad \text{①}$$

$$4x - 3y = 11 \quad \text{②}$$

$$\text{①} \times 3$$

$$15x - 6y = 36 \quad \text{③}$$

$$\text{②} \times 2$$

$$8x - 6y = 22 \quad \text{④}$$

$$\text{③} - \text{④}$$

$$7x = 14$$

$$x = \frac{14}{7}$$

$$\underline{x = 2}$$

Sub for x in ①

$$5(2) - 2y = 12$$

$$10 - 2y = 12$$

$$-2y = 12 - 10$$

$$-2y = 2$$

$$y = \frac{2}{-2} \quad \underline{y = -1}$$

$$\begin{cases} x = 2 \\ y = -1 \end{cases}$$

Exercise

$$\begin{array}{l} 1) \quad 4x + 2y = 22 \\ \quad \quad x + 4y = 9 \end{array} \quad \begin{array}{l} x = 5 \\ y = 1 \end{array}$$

$$\begin{array}{l} 2) \quad 3x - 5y = 2 \\ \quad \quad 2x + 10y = 28 \end{array} \quad \begin{array}{l} x = 4 \\ y = 2 \end{array}$$

$$\begin{array}{l} 3) \quad 3x - 2y = 3 \\ \quad \quad 5x - 2y = 9 \end{array} \quad \begin{array}{l} x = 3 \\ y = 3 \end{array}$$

$$\begin{array}{l} 4) \quad 7x + y = 18 \\ \quad \quad 3x + 2y = 14 \end{array} \quad \begin{array}{l} x = 2 \\ y = 4 \end{array}$$

$$\begin{array}{l} 5) \quad 5x - 4y = -15 \\ \quad \quad 7x + 8y = 47 \end{array} \quad \begin{array}{l} x = 1 \\ y = 5 \end{array}$$
