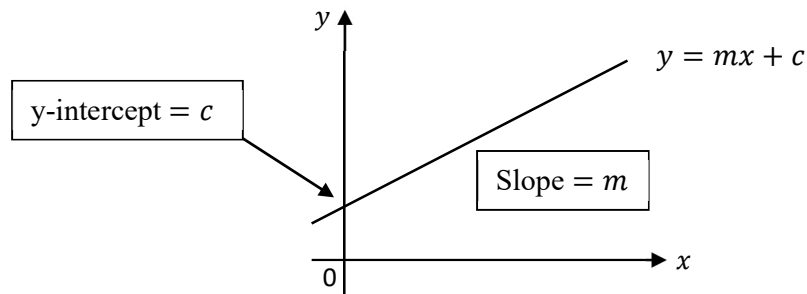


## K53 Ch.5 linear equations

### ① Linear equations

Equations with **two variables** that give straight lines when plotted on graphs. Below is the **general equation**:

$$y = mx + c$$



### ② Solving simultaneous linear equations with two unknowns

Let us study this case: Solve  $\begin{cases} 2x + y = 5 \dots\dots\dots ① \\ 3x - 2y = 4 \dots\dots\dots ② \end{cases}$

Method of substitution

From ①:  $2x + y = 5$

$$y = 5 - 2x \dots\dots\dots ③$$

Sub. ③ into ②:

$$3x - 2(5 - 2x) = 4$$

$$x = 2$$

Sub.  $x = 2$  into ③:

$$y = 5 - 2(2) = 1$$

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

Solve  $\begin{cases} 2x + y = 5 \dots\dots ① \\ 3x - 2y = 4 \dots\dots ② \end{cases}$

### Method of elimination

①  $\times 2$ :  $4x + 2y = 10 \dots\dots ③$

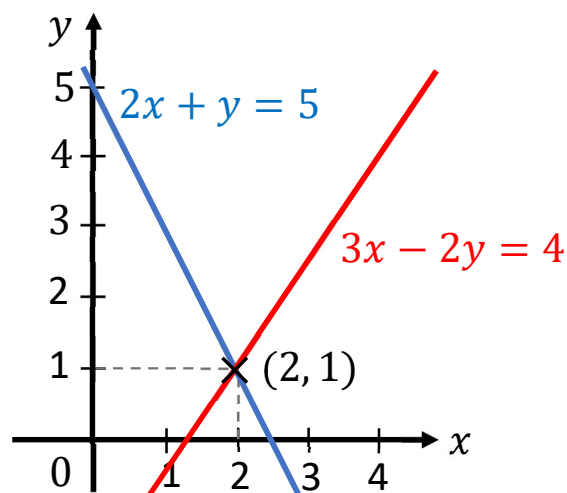
② + ③:

$$\begin{array}{rcl} & & \text{(Eliminated)} \\ & \searrow & \\ & 4x + 2y = 10 & \\ +) & 3x - 2y = 4 & \\ \hline & 7x & = 14 \end{array}$$

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

### Graphical method

The intersection of two functions is the **solution**.



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