

6.3 : Simultaneous Linear Equations in Two Variables (ELIMINATION METHOD)

1. Solve the simultaneous linear equations using the elimination method.

$$\begin{array}{rcl} \text{(a) } 2x + 3y = 2 & \text{---} & \textcircled{1} \\ 3x + 4y = 4 & \text{---} & \textcircled{2} \end{array}$$

$$\textcircled{1} \times 3: \quad 6x + 9y = \text{---} \quad \textcircled{3}$$

$$\textcircled{2} \times 2: \quad \underline{6x + 8y = \text{---}} \quad \textcircled{4}$$

$$\textcircled{3} - \textcircled{4}: \quad y =$$

$$\text{Substitute } y = -2 \text{ into } \textcircled{1}: \quad 2x + 3(\quad) = 2$$

$$2x - 6 = 2$$

$$2x =$$

$$x =$$

Therefore, $x =$, $y =$

$$\begin{array}{rcl} \text{(b) } 2a + 5b = 6 & \text{---} & \textcircled{1} \\ 4a + 3b = -2 & \text{---} & \textcircled{2} \end{array}$$

$$\textcircled{1} \times 2: \quad \text{---} \quad \textcircled{3}$$

$$\underline{4a + 3b = 2} \quad \text{---} \quad \textcircled{2}$$

$$\textcircled{3} - \textcircled{2}: \quad 7b =$$

$$b =$$

$$\text{Substitute } b = 2 \text{ into } \textcircled{1}: \quad 2a + 5(\quad) = 6$$

$$2a =$$

$$a =$$

Therefore, $a =$, $b =$

(c) $3u - 5v = 5$ _____ ①
 $4u - 3v = 14$ _____ ②

① $\times 4$: _____ ③
 ② $\times 3$: _____ ④

③ $-$ ④ : $-11v = -22$
 $v =$

Substitute $v = 2$ into ①: $3u - 5() = 5$

$3u =$

$u =$

Therefore, $u =$, $v =$

Problem Solving :

The sum of two numbers is 108, and the difference between the two numbers is 18. Find the two numbers.

Let the two numbers be x and y .

	<u>In Linear Equation Form</u>	
Sum of two numbers is 108 :	_____	①
Difference between two numbers is 18 :	_____	②

① $+$ ② :

$x =$

Substitute $x = 63$ into ①: $63 + y = 108$

$y =$

$y =$

Therefore, the two numbers are and .