Exercise 3B

Question 1:

The given equations are

$x + y = 8$ ---(1)

$2x - 3y = 1$ ---(2)

Multiplying (1) by 3 and (2) by 1, we get

$3x + 3y = 24$ ---(3)

$2x - 3y = 1$ ---(4)

Adding (3) and (4), we get

$$5x = 25 \Rightarrow x = \frac{25}{5} \Rightarrow x = 5$$

Substituting $x = 5$ in (1), we get

$5 + y = 8 \Rightarrow y = 8 - 5 = 3$

$\therefore x = 5$ and $y = 3$

Question 2:

The given equations are

$x - y = 3$ ---(1)

$3x - 2y = 10$ ---(2)

Multiplying (1) by 2 and (2) by 1, we get

$2x - 2y = 6$ -(3)

$3x - 2y = 10$ ---(4)

Subtracting (3) from (4), we get $x = 4$

Substituting $x = 4$ in (1) we get

$4 - y = 3 \Rightarrow y = 4 - 3 = 1$

$\therefore x = 4, y = 1$

Question 3:

The given equations are
$x + y = 3$ ---(1)
$4x - 3y = 26$ ---(2)
By Multiplying (1) by 3 and (2) by 1, we get
$3x + 3y = 9$ ---(3)
$4x - 3y = 26$ ----(4)
Adding (3) and (4), we get
$7x = 35 \Rightarrow x = 5$
Substituting $x = 5$ in (1), we get
$x + y = 3$
$5 + y = 3 \Rightarrow y = 3 - 5 = -2$
$\therefore x = 5, y = -2$

Question 4:

The given equations are
$2x + 3y = 0$ ---(1)
$3x + 4y = 5$ ---(2)
Multiplying (1) by 4 and (2) by 3, we get
$8x + 12y = 0$ ---(3)
$9x + 12y = 15$ ---(4)
Subtracting (3) from (4), we get
$x = 15$

Substituting $x = 15$ in (1), we get
$2 \times 15 + 3y = 0 \Rightarrow 3y = 0 - 30$
$3y = -30$ or $y = -10$
$\therefore x = 15, y = -10$

********** END **********