Exercise 3B

Question 8:

The given equations are

$$2x - \frac{3y}{4} = 3 \quad \text{----(1)}$$

$$5x = 2y + 7 \quad \text{----(2)}$$

Multiplying (1) by 2 and (2) by $\frac{3}{4}$

$$4x - \frac{3y}{2} = 6 \quad \text{----(3)}$$

$$\frac{15}{4}x - \frac{3}{2}y = \frac{21}{4} \quad \text{---(4)}$$

Subtracting (3) from (4), we get

$$-\frac{1}{4}x = -\frac{3}{4}$$

$$-x = -3 \Rightarrow x = 3$$

Substituting $x = 3$ in (1), we get

$$2 \times 3 - \frac{3y}{4} = 3$$

$$-\frac{3y}{4} = 3 - 6$$

$$-\frac{3y}{4} = -3 \Rightarrow y = \frac{-3 \times 4}{-3} = 4$$

$\therefore$ solution is $x = 3$ and $y = 4$

Question 9:

The given equations are

$11x + 15y + 23 = 0$ ---(1)

$7x - 2y - 20 = 0$ ---(2)

Multiplying (1) by 2 and (2) by 15

$22x + 30y = -46$ ---(3)

$105x - 30y = 300$ ---(4)

Adding (3) and (4), we get

$$127x = 254 \Rightarrow x = \frac{254}{127} = 2$$

Substituting $x = 2$ in (1), we get

$11 \times 2 + 15y = -23$

$15y = -23 - 22 \Rightarrow 15y = -45$

$y = -3$

$\therefore$ solution is $x = 2, y = -3$

Question 10:

The given equations are

$2x - 5y + 8 = 0$ ---(1)

$x - 4y + 7 = 0$ ---(2)

Multiplying (1) by 4 and (2) by 5

$8x - 20y = -32$----(3)

$5x - 20y = -35$ ---(4)

Subtracting (3) from (4), we get

$-3x = -3 \Rightarrow x = 1$

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

$2 \times 1 - 5y = -8$

$-5y = -8 - 2 \Rightarrow -5y = -10$

$\therefore \ y = 2$

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

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