



Linear Inequations Ex 15.4 Q5

We have,

$$F_1 = 86^\circ F$$

$$\therefore F_1 = \frac{9}{5}C_1 + 32 \quad \left[\because F = \frac{9}{5}C + 32 \right]$$

$$\Rightarrow 86 = \frac{9}{5}C_1 + 32$$

$$\Rightarrow 86 - 32 = \frac{9}{5}C_1$$

$$\Rightarrow 54 = \frac{9}{5}C_1$$

$$\Rightarrow 9C_1 = 5 \times 54$$

$$\Rightarrow C_1 = \frac{5 \times 54}{9}$$

$$\Rightarrow C_1 = 5 \times 6 = 30^\circ C$$

Now, $F_2 = 95^\circ F$

$$\therefore F_2 = \frac{9}{5}C_2 + 32$$

$$\Rightarrow 95 = \frac{9}{5}C_2 + 32$$

$$\Rightarrow 95 - 32 = \frac{9}{5}C_2$$

$$\Rightarrow 63 = \frac{9}{5}C_2$$

$$\Rightarrow 9C_2 = 63 \times 5$$

$$\Rightarrow C_2 = \frac{63 \times 5}{9}$$

$$\Rightarrow C_2 = 7 \times 5 = 35^\circ C$$

\therefore The range of temperature of the solution is from $30^\circ C$ to $35^\circ C$.

Linear Inequations Ex 15.4 Q6

We have,

$$C_1 = 30^\circ\text{C}$$

$$\therefore F_1 = \frac{9}{5}C_1 + 32 \quad \left[\because F = \frac{9}{5}C + 32 \right]$$

$$\Rightarrow F_1 = \frac{9}{5} \times 30 + 32$$

$$\Rightarrow F_1 = 9 \times 6 + 32$$

$$\Rightarrow F_1 = 54 + 32$$

$$\Rightarrow F_1 = 86^\circ\text{F}$$

Now, $C_2 = 35^\circ\text{C}$

$$\therefore F_2 = \frac{9}{5}C_2 + 32$$

$$\Rightarrow F_2 = \frac{9}{5} \times 35 + 32$$

$$\Rightarrow F_2 = 9 \times 7 + 32$$

$$\Rightarrow F_2 = 63 + 32$$

$$\Rightarrow F_2 = 95^\circ\text{F}$$

\therefore Hence, the temperature of the solution lies between 86°F to 95°F .

Linear Inequations Ex 15.4 Q7

Suppose Shikha scores x marks in the fifth paper. Then,

$$90 \leq \frac{87 + 95 + 92 + 94 + x}{5}$$

$$\Rightarrow 90 \times 5 \leq 182 + 186 + x$$

$$\Rightarrow 450 \leq 368 + x$$

$$\Rightarrow 450 - 368 \leq x$$

$$\Rightarrow 82 \leq x$$

Hence, the minimum marks is required in the last paper is 82.

Linear Inequations Ex 15.4 Q8

We have,

Profit = Revenue - Cost

Therefore, to earn some profit, we must have

Revenue > Cost

$$\Rightarrow 2x > 300 + \frac{3}{2}x$$

$$\Rightarrow 2x - \frac{3}{2}x > 300$$

$$\Rightarrow \frac{4x - 3x}{2} > 300$$

$$\Rightarrow x > 300 \times 2$$

$$\Rightarrow x > 600$$

Hence, the manufacturer must sell more than 600 cassettes to realize some profit.

***** END *****