

Section - 3

Ans 10

$$A + B = 200$$

$$A + B = 193 - 370 = 23$$

$$A \cup B = A + B - A \cap B$$

$$A \cup B = 200 + 193 - 370$$

$$A \cup B = 23 \text{ Ans}$$

Q13 Find the Range and the function $f(x) = \frac{1}{2 - \cos 3x}$

$$\text{Let } y = \frac{1}{2 - \cos 3x}$$

$$2 - \cos 3x = \frac{1}{y} \quad \text{or} \quad \cos 3x = 2 - \frac{1}{y}$$

$$-1 \leq \left(2 - \frac{1}{y}\right) \leq 1 \quad (\because -1 \leq \cos 3x \leq 1)$$

$$-1 \leq 2 - \frac{1}{y} \quad \text{and} \quad 2 - \frac{1}{y} \leq 1$$

$$y \geq \frac{1}{3} \quad \text{and} \quad y \leq 1, \frac{1}{3} \leq y \leq 1$$

$$\text{Rf} = \text{Range } (f) = \left[\frac{1}{3}, 1 \right] \text{ Ans}$$