



Exercise 2A

Question 4:

We have

$$f(x) = 5x^2 - 4 - 8x = 5x^2 - 8x - 4$$

$$= 5x^2 - 10x + 2x - 4$$

$$= 5x(x - 2) + 2(x - 2)$$

$$f(x) = 0 \Rightarrow (x - 2)(5x + 2) = 0$$

$$\Rightarrow x - 2 = 0 \quad \text{or} \quad 5x + 2 = 0$$

$$\therefore x = 2, \frac{-2}{5}$$

So, the zeroes of $f(x)$ are 2 and $\frac{-2}{5}$

$$\text{Sum of zeroes} = 2 + \left(\frac{-2}{5}\right) = \frac{10 - 2}{5} = \frac{8}{5} = -\frac{\text{Coeff. of } x}{\text{Coeff. of } x^2}$$

$$\text{Product of zeroes} = 2 \times \left(\frac{-2}{5}\right) = \frac{-4}{5} = \frac{\text{Constant term}}{\text{coeff. of } x^2}$$

Question 5:

We have

$$f(x) = 6x^2 - 3 - 7x$$

$$= 6x^2 - 9x + 2x - 3$$

$$= 3x(2x - 3) + (2x - 3)$$

$$f(x) = 0 \Rightarrow (2x - 3)(3x + 1) = 0$$

$$\Rightarrow 2x - 3 = 0 \quad \text{or} \quad 3x + 1 = 0$$

$$\therefore x = \frac{3}{2}, -\frac{1}{3}$$

$$\begin{aligned} \text{Sum of zeros} &= \frac{3}{2} + \left(-\frac{1}{3}\right) = \frac{9 - 2}{6} = \frac{7}{6} \\ &= -\frac{\text{Coeff. of } x}{\text{Coeff. of } x^2} \end{aligned}$$

$$\begin{aligned} \text{Product of zeros} &= \frac{3}{2} \times \left(-\frac{1}{3}\right) = -\frac{1}{2} = \frac{-3}{6} \\ &= \frac{\text{Constant term}}{\text{Coeff. of } x^2} \end{aligned}$$

Question 6:

We have

$$f(x) = 2x^2 - 11x + 15$$

$$= 2x^2 - 6x - 5x + 15$$

$$= 2x(x - 3) - 5(x - 3) = (x - 3)(2x - 5)$$

$$\text{Now, } f(x) = (x - 3)(2x - 5) = 0$$

$$\therefore x - 3 = 0 \text{ or } 2x - 5 = 0$$

$$\Rightarrow x = 3 \text{ or } x = \frac{5}{2}$$

So zeros of $f(x)$ are 3 and $\frac{5}{2}$

$$\begin{aligned} \text{Sum of zeros} &= 3 + \frac{5}{2} = \frac{11}{2} = -\frac{(-11)}{2} \\ &= -\frac{\text{Coeff. of } x}{\text{Coeff. of } x^2} \end{aligned}$$

$$\text{product of zeros} = 3 \times \frac{5}{2} = \frac{15}{2} = \frac{\text{Constant term}}{\text{Coeff. of } x^2}$$

***** END *****