

SELF ASSESSMENT TEST SOLUTIONS

$$1. \quad \frac{1}{\alpha} + \frac{1}{\beta} = \frac{\beta + \alpha}{\alpha\beta} = \frac{7/5}{2/5} = \frac{7}{2}$$

$$2. \quad 9$$

$$3. \quad 3$$

$$4. \quad (C)$$

$$5. \quad (A)$$

$$6. \quad (b)$$

$$7. \quad (B)$$

$$\begin{aligned} 8. \quad 6x^2 + x - 2 &= 6x^2 + 4x - 3x - 2 \\ &= 2x(3x + 2) - 1(3x + 2) \\ &= (3x + 2)(2x - 1) \end{aligned}$$

$$\therefore \text{Zeroes are } -\frac{2}{3} \text{ and } \frac{1}{2}$$

$$\text{Sum of zeroes} = \frac{1}{2} - \frac{2}{3} = -\frac{1}{6},$$

$$\text{Also } -\frac{b}{a} = -\frac{1}{6}$$

$$\Rightarrow \text{Sum of zeroes} = \frac{-b}{a}$$

$$\text{Product of zeroes} = \frac{1}{2} \times \frac{-2}{3} = \frac{-1}{3},$$

$$\text{Also } \frac{c}{a} = \frac{-2}{6} = \frac{-1}{3}$$

$$\Rightarrow \text{Product of zeroes} = \frac{c}{a}$$

$$\begin{aligned} 9. \quad 3x^2 - 8x + 4 &= 3x^2 - 6x - 2x + 4 \\ &= 3x(x - 2) - 2(x - 2) \\ &= (3x - 2)(x - 2) \end{aligned}$$

$$\therefore \text{Zeroes are } \frac{2}{3} \text{ and } 2$$

$$\text{Sum of zeroes} = \frac{2}{3} + 2 = \frac{8}{3}$$

$$\text{Product of zeroes} = \frac{2}{3} \times 2 = \frac{4}{3}$$

$$\frac{-b}{a} = \frac{-(-8)}{3} = \frac{8}{3}$$

$$\frac{c}{a} = \frac{4}{3}$$

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$$\text{Hence Sum of zeroes} = \frac{-b}{a}$$

$$\text{Product of zeroes} = \frac{c}{a}$$

$$\begin{aligned} 10. \quad 2x^2 + x - 10 &= 2x^2 + 5x - 4x - 10 \\ &= x(2x + 5) - 2(2x + 5) \\ &= (x - 2)(2x + 5) \end{aligned}$$

$$\therefore \text{Zeroes are } 2 \text{ and } \frac{-5}{2}$$

$$\text{Sum of zeroes} = 2 + \left(\frac{-5}{2}\right) = \frac{-1}{2}$$

$$\text{Also, } \frac{-b}{a} = \frac{-1}{2}$$

$$\text{Product of zeroes} = 2 \times \frac{-5}{2} = -5$$

$$\text{Also, } \frac{c}{a} = \frac{-10}{2} = -5$$