

Test-4

Case study - 1

(i) In the standard form of quadratic polynomial ax^2+bx+c , a, b, c are

- (a) all are real numbers (b) all are rational numbers
(c) a is a non zero real number and b and c are any real no.s
(d) all are integers

(ii) If α and $\frac{1}{\alpha}$ are the zeroes of $p(x) = 2x^2 - x + 8k$, then k is -

- (a) 4 (b) $\frac{1}{4}$ (c) $-\frac{1}{4}$ (d) 2

(iii) The graph of $x^2+1=0$

- (a) intersects x -axis at two distinct points
(b) touches x -axis at a point
(c) neither touches nor intersects x -axis
(d) either touches or intersects x -axis

(iv) If the sum of the roots is $-p$ and product of the roots is $-\frac{1}{p}$, then the quadratic polynomial is

- (a) $k(-px^2 + \frac{x}{p} + 1)$ (b) $k(px^2 - \frac{x}{p} - 1)$

- (c) $k(x^2 + px - \frac{1}{p})$ (d) $k(x^2 + px + \frac{1}{p})$

CASE STUDY

CASE STUDY-2

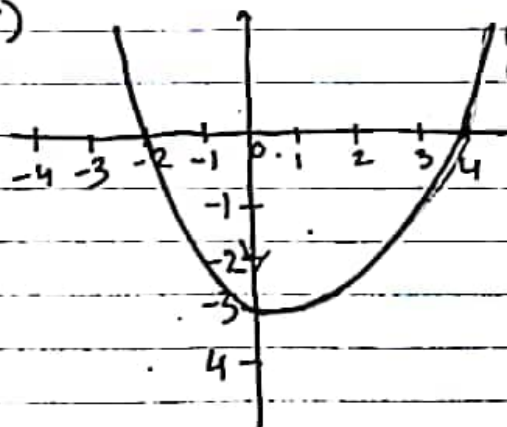
(i) The shape of the pose is

- (a) spiral (b) ellipse (c) linear (d) parabola

(ii) The graph of parabola opens downwards, if

- (a) $a \geq 0$ (b) $a = 0$ (c) $a < 0$ (d) $a > 0$

(iii)



In the graph, how many zeroes are there for the polynomial

(iv) The two zeroes are

- (a) 2, 4 (b) -2, 4 (c) -8, 4 (d) 2, -8

(v) The zeroes of the quadratic polynomial

$4\sqrt{3}x^2 + 5x - 2\sqrt{3}$ are

- (a) $\frac{2}{\sqrt{3}}, \frac{\sqrt{3}}{4}$ (b) $-\frac{2}{\sqrt{3}}, \frac{\sqrt{3}}{4}$ (c) $\frac{2}{\sqrt{3}}, -\frac{\sqrt{3}}{4}$ (d) $-\frac{2}{\sqrt{3}}, -\frac{\sqrt{3}}{4}$

Test-4 (Answers)

Case-Study 1

(i) a is a non-zero real number and b and c are any real numbers (c)

(ii) product of zeroes, $\alpha \times \frac{1}{\alpha} = \frac{c}{a}$

$$\Rightarrow 1 = \frac{8k}{2}$$

$$\therefore k = \frac{2}{8} = \frac{1}{4} \text{ (b)}$$

(iii) $x^2 + 1 = 0$

$$\Rightarrow x^2 = -1$$

$$\Rightarrow x = \pm \sqrt{-1}, \text{ imaginary roots}$$

neither touches nor intersects x -axis (c)

(iv) $\alpha + \beta = -p$
 $\alpha\beta = -\frac{1}{p}$

\therefore the required polynomial is $k[x^2 - (\alpha + \beta)x + \alpha\beta]$
 $= k[x^2 + px - \frac{1}{p}]$ (c)

Case-Study 2

(i) parabola (d)

(ii) $a < 0$ (c)

(iii) 2 (c)

(iv) -2, 4 (b)

(v) $p(x) = 4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0$

$$\Rightarrow 4\sqrt{3}x^2 + 8x - 3x - 2\sqrt{3} = 0$$

$$\Rightarrow 4x(\sqrt{3}x + 2) - \sqrt{3}(\sqrt{3}x + 2) = 0$$

$$\Rightarrow (4x - \sqrt{3})(\sqrt{3}x + 2) = 0$$

$$\therefore x = \frac{\sqrt{3}}{4}, -\frac{2}{\sqrt{3}} \text{ (b)}$$

$$\begin{array}{cc} S & P \\ 5 & -24 \\ & 8, -3 \end{array}$$