INTERNATIONAL INDIAN SCHOOL BURAIDAH

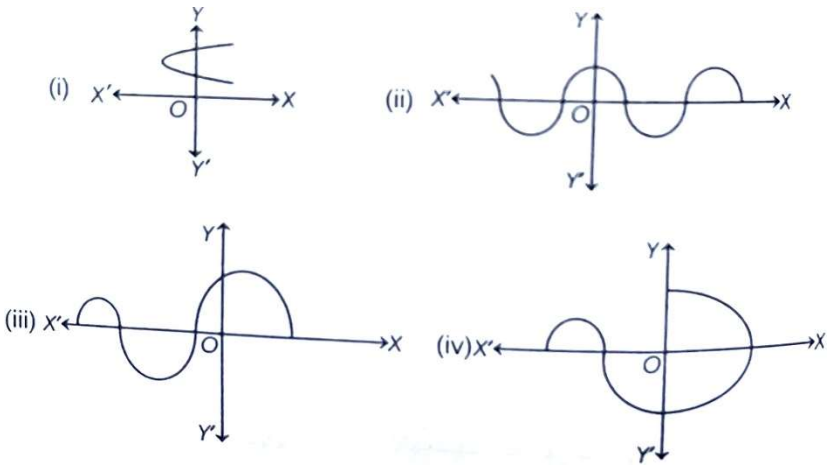
Worksheet for the Academic Year 2024-25

CLASS: X SUBJECT: MATHEMATICS DATE: 20-04-2024

LESSON:02 – POLYNOMIALS

Level 1 :

1. The quadratic polynomial, the sum of whose zeroes is-5 and their product is 6, is (Ans: $x^2 + 5x + 6$)
2. If one zero of the polynomial $x^2 + 3x + k$ is 2, then find the value of k (Ans:-10)
3. If 2 is a zero of polynomial $p(x) = 4x^2 + 2x – 5a$, then find the value of a. (Ans: 4)
4. If α and β are the zeroes of $4x^2 - 4x - 3$, then find the value of $\frac{1}{\alpha} + \frac{1}{\beta}$ (Ans: $\frac{-4}{3}$)
5. If the sum of the zeroes of the quadratic polynomial $kt^2 + 2t + 3k$ is equal to their product, Find the value of k (Ans: $\frac{-2}{3}$)
6. If α & β are the zeroes of the polynomial $x^2 - 5x + k$ such that $\alpha - \beta = 1$, Find the value of k (Ans: k = 6)
7. If 2 and 3 are zeroes of polynomial $3x^2 – 2kx + 2m$, then find the value of k and m (Ans: m = 9 & k = $\frac{15}{2}$)
8. Find the zeroes of the quadratic polynomials and verify the relationship between the zeroes and their coefficients.
   a) $x^2 + 2\sqrt{2}x – 6$ (Ans:-$3\sqrt{2}$, $\sqrt{2}$)
   b) $\sqrt{3}x^2 + 10x + 7\sqrt{3}$ (Ans: -$\sqrt{3}$, $\frac{-7}{\sqrt{3}}$)
9. Find the quadratic polynomial whose sum and product of the zeroes are :
   a) $\frac{-8}{3}, \frac{4}{3}$ (Ans: $k(x^2 + \frac{8}{3}x + \frac{4}{3})$)
   b) $-2\sqrt{3}$,-9 (Ans: $x^2 + 2\sqrt{3}x – 9$)
10. If one zero of $5x^2 + 13x + k$ is the reciprocal of the other zero, then find the value of k (Ans: 5)
11. The graph y = p(x) is given below, for some polynomials p(x). Find the number of zeroes of p(x) in each case:



(Ans: i) 0 ii) 5 iii) 4 iv) 3)

Level 2

12. If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 - 1$, Find the quadratic polynomial whose zeroes are $\frac{2\alpha}{\beta}$ and $\frac{2\beta}{\alpha}$. (Ans: $k(x^2 + 4x + 4)$)
13. If α and β are the zeroes of the quadratic polynomial $p(x) = 4x^2 - 5x - 1$, Find the value of $\alpha^2\beta + \alpha\beta^2$. (Ans: $\frac{-5}{16}$)

14. If the sum of the squares of zeroes of the quadratic polynomial $f(x) = x^2 - 8x + k$ is 40, Find the value of k (Ans: 12)

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