

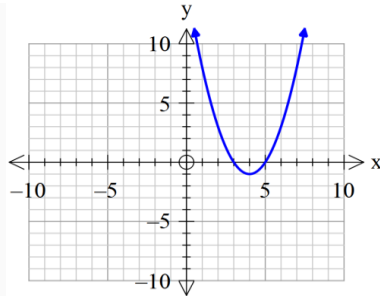
ASSIGNMENT

POLYNOMIALS

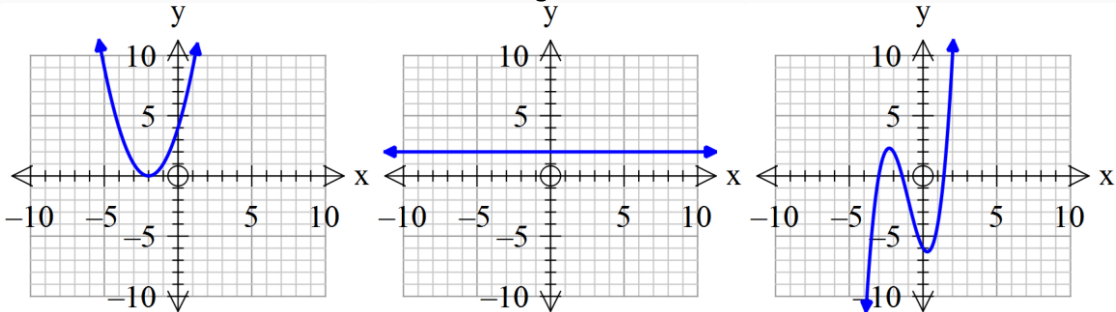
CLASS 10

PART A

Q1. Find the zeroes of the polynomial from the graph.



Q2. Find the number of zeroes in each of the following



PART B

Q3. Find the zeroes of the following polynomials by factorization method and verify the relationship between the zeroes and coefficients of polynomial

- a) $6x^2 - 7x - 3$
- b) $x^2 + \frac{1}{6}x - 2$
- c) $5t^2 + 12t + 7$
- d) $2s^2 - (1 + 2\sqrt{2})s + \sqrt{2}$
- e) $y^2 + 4\sqrt{3}y - \sqrt{15}$

#Q4. Verify that 3, -2 and 1 are zeroes of cubic polynomial $p(x) = 3x^3 - 10x^2 - 27x + 10$ and verify the relationship between its zeroes and coefficients.

Q5. Find the sum and product of zeroes of $p(x) = \sqrt{2}x^2 - 3x - 2\sqrt{2}$.

Q6. If α and β are the zeroes of $2x^2 + 5(x - 2)$, then find product of α and β .

Q7.If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then find the value of k.

Q8.If the product of zeroes of polynomial $ax^2 - 6x - 6$ is 4,then find the value of a.

Q9.If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other ,then find value of a.

Q10.If 2 and -3 are the zeroes of polynomial $x^2 + (a + 1)x + b$,then find value of a and b.

Q11.If α and β are the zeroes of the quadratic polynomial $p(x) = x^2 - 8x + 15$,then find the value of

a) $\alpha^3 + \beta^3$

b) $\alpha^2 + \beta^2$

c) $\frac{1}{\alpha} + \frac{1}{\beta}$

d) $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$

Q12.If the zeroes of $x^2 - kx + 6$ are in the ratio 3:2,find k.

Q13.The sum and product of the zeroes of the polynomial $f(x) = 4x^2 - 27x + 3k^2$ are equal .Find the value(s) of k.

#Q14.Find the zeroes of the polynomial $2x^3 + x^2 - 5x + 2$.

PART C

Q15 . Find a quadratic polynomial whose sum and product of zeroes are $\sqrt{2}$ and 3 respectively.

Q16. Find a quadratic polynomial ,the sum and product of whose zeroes are $\sqrt{2}$ and $-3/2$ respectively. Also find its zeroes.

Q17. Find a quadratic polynomials whose zeroes are $2 + \sqrt{3}$ and $2 - \sqrt{3}$.

Q18.Find a quadratic polynomial whose sum of zeroes is 15 and one zero is -3.

#Q19. Find a cubic polynomial whose zeroes are $-2, \frac{1}{2}$ and 1.

Q20.If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 - 2x + 3$, then find a quadratic equation whose zeroes are $\alpha + 2$ and $\beta + 2$.

Q21. If α and β are the zeroes of the quadratic polynomial such that $\alpha + \beta = 24, \alpha - \beta = 8$,find a quadratic polynomial having α and β as its zeroes.

PART D

Q22.If the polynomial $6x^4 + 8x^3 + 17x^2 + 21x + 7$ is divided by another polynomial $3x^2 + 4x + 1$,the remainder comes out to be $(ax+b)$, find a and b.

Q23.Find all zeroes of the polynomial $x^3 - 4x^2 - 3x + 12$,if two of its zeroes are $\sqrt{3}$ and $-\sqrt{3}$.

Q24. Find all zeroes of the polynomial $2x^3 - x^2 - 5x - 2$,if two of its zeroes are -1 and 2.

Q25. Find the quotient and remainder when $4x^3 + 2x^2 + 5x - 6$ is divided by $2x^2 + 3x + 1$.

Q26. On dividing $x^4 - 5x + 6$ by a polynomial $g(x)$, the quotient and remainder were $-x^2 - 2$ and $-5x + 10$ respectively. Find $g(x)$.

Q27. If on division of a nonzero polynomial $p(x)$ by a polynomial $g(x)$, the remainder is 0, what is the relation between the degrees of $p(x)$ and $g(x)$?

HOTS

Q28. If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 - p(x + 1) - c$, show that $(\alpha + 1)(\beta + 1) = 1 - c$.

Q29. If α and β are zeroes of quadratic polynomial $f(x) = x^2 - 2x + 3$, then find a quadratic polynomial whose zeroes are $\frac{\alpha-1}{\alpha+1}$ and $\frac{\beta-1}{\beta+1}$.

Q30. If α and β are zeroes of quadratic polynomial $f(x) = x^2 - 5x + 4$, then find the value of

$$a) \frac{\alpha^2}{\beta^2} + \frac{\beta^2}{\alpha^2} \quad b) \alpha^4 + \beta^4 \quad c) \alpha^4\beta^3 + \alpha^3\beta^4 \quad d) \frac{\alpha}{\beta} + \frac{\beta}{\alpha} + 2\left(\frac{1}{\alpha} + \frac{1}{\beta}\right) + 3\alpha\beta$$

Q31. What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$.

Q32. If the polynomial $f(x) = x^4 - 6x^3 + 16x^2 - 25x + 10$ is divided by another polynomial $x^2 - 2x + k$, the remainder comes out to be $x + a$, find k and a .