Class: X   **Subject: Mathematics**

Chapter : 2 Polynomials Answer Key

1. (b) 3, -1

2. b) x^2 - 3x -10

3. (a) both negative

4. (a) -2

5. (a) $qx^2 + px + 1$

6. (a) -9/2

7. (a) −1

8. (b) -3/7

9. (d) more than 3

10. (b) 0

11. We find that the graph y = g(x) is a straight line. So, g (x) is a linear polynomial.

12. The number of zeroes is 3 as the graph given in the question intersects the x-axis at 3 points.

13. Since the graph of f(x) intersects the x-axis at only one point, therefore f(x) has exactly one zero.

14. k is -2/3

15. 1/2 and – ½

16. x^2 − + 2 x − 15

17. x^2 − 3 x − 2

18. $x^2 + \dfrac{1}{2} x + \dfrac{1}{2}$

19. Sum of zeroes = -5 and Product of zeroes = 6

20. k = 3

21. (i) x^2+ √2   (ii) x^2−(2+ √3) x + 2-√3   (iii) x^2-2 √5x - √5   (iv) $2x^2$-3x − 1

22.   -67/6

23. = x^2 - 11x + 30

24. x = 1, - 1/4

   Verification: Sum of the zeroes = - (coefficient of x) / coefficient of x^2

   $\alpha + \beta = - b/a$

   1 - 1/4 = - (- 3)/4

   or 3/4 = 3/4

   Product of the zeroes = constant term / coefficient of x^2

   $\alpha \beta = c/a$

   1(- 1/4) = - 1/4

   $\Rightarrow$ - 1/4 = - 1/4

25. Since the graph of quadratic polynomial $f(x) = ax^2+b\,x+c$ cuts negative direction of the y–axis, we put x = 0 to find the intersection point on y-axis.
    y = 0+0+c = c
    So, the point is (0, c).

    As the given quadratic polynomial cuts negative direction of y-axis. So c <0

26. Discriminant (D) = -8

    Since the discriminant is negative so this polynomial has no real zeros

27. b /ac

28. k = −71/ 2

29. $(4)^2$ - 2(-5) = 16 + 10 = 26

30. t = - 1, - 7/5

    Verification: Sum of the zeroes = - (coefficient of x) / coefficient of x^2

    $\alpha + \beta = - b/a$

    (- 1) + (- 7/5) = - (12)/5 = - 12/5 = - 12/5

    Product of the zeroes = constant term / coefficient of x^2 = c/a

    $\alpha \beta = (- 1)(- 7/5) = 7/5$

    $\Rightarrow$ 7/5 = 7/5

31. $x^2 - x - 20$

32. k = 6

33. $x^2 + 2x + 1$

34. s= = −1/2 , − √2 Verification

35. the zeroes of the given quadratic polynomial are − √15/2 , √15/2

    Verification of relationship between zeroes and coefficients

36. v = −5 √3   Or v =√ 3

37. the value of expression is b.

38. ⇒ y = 2/3 or y = − 1 /7

    Verification of relationship between zeroes and coefficients

39. Sum of zeroes of new polynomial = 16/3

    Product of the zeroes of new polynomial = 16/3

    polynomial = x^2 - (Sum of the zeroes)x + Product of the zeroes

    = (3x^2 -16x +16)/3

40. α = 5, β = −5/6 or − 6/ 5