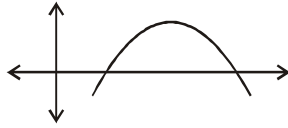
**VERY SHORT ANSWER TYPE QUESTIONS**

1. If one zero of the polynomial $P(x) = 5x^2 + 13x + K$ is reciprocal of the other, then value of k is
(a) 0 (b) 5 (c) $\frac{1}{6}$ (d) 6
2. If α and β are the zeroes of the polynomial $p(x) = x^2 - p(x+1) - c$ such that $(\alpha + 1)(\beta + 1) = 0$, the $c =$ _____.
3. If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is
(a) 10 (b) -10 (c) 5 (d) -5
4. If the zeroes of the quadratic polynomial $x^2 + (a+1)x + b$ are 2 and -3, then
(a) $a = -7, b = -1$ (b) $a = 5, b = -1$
(c) $a = 2, b = -6$ (d) $a = 0, b = -6$
5. What should be added to the polynomial $x^2 - 5x + 4$, so that 3 is the zero of the resulting polynomial:
(a) 1 (b) 2 (c) 4 (d) 5
6. If α and β are the zeros of the polynomial
$$f(x) = x^2 + x + 1, \text{ then } \frac{1}{\alpha} + \frac{1}{\beta} =$$
7. If a quadratic polynomial $f(x)$ is not factorizable into linear factors, then it has no real zero. (True/False)
8. If a quadratic polynomial $f(x)$ is a square of a linear polynomial, then its two zeros are coincident. (True/False).
9. If $p(x) = x^3 - 2x^2 - x + 2 = (x+1)(x-2)(x-d)$ then what is the value of d ?

10. The quadratic polynomial $ax^2 + bx + c$, $a \neq 0$ is represented by this graph then a is



- (a) Natural no. (b) Whole no. (c) Negative Integer (d) Irrational no.
11. What will be the number of zeros of a linear polynomial $p(x)$ if its graph (i) passes through the origin. (ii) doesn't intersect or touch x -axis at any point?
12. Find the quadratic polynomial whose zeros are $(5 + 2\sqrt{3})$ and $(5 - 2\sqrt{3})$
13. If one zero of $p(x) = 4x^2 - (8k^2 - 40k)x - 9$ is negative of the other, find values of k .
14. What number should be subtracted to the polynomial $x^2 - 5x + 4$, so that 3 is a zero of polynomial so obtained.
15. How many (i) maximum (ii) minimum number of zeroes can a quadratic polynomial have?
16. What will be the number of real zeros of the polynomial $x^2 + 1$?
17. If α and β are zeros of polynomial $6x^2 - 7x - 3$, then form a quadratic polynomial where zeros are 2α and 2β (CBSE)
18. If α and $\frac{1}{\alpha}$ are zeros of $4x^2 - 17x + k - 4$, find the value of k .
19. What will be the number of zeros of the polynomials whose graphs are parallel to (i) y -axis (ii) x -axis?
20. What will be the number of zeros of the polynomials whose graphs are either touching or intersecting the axis only at the points:
(i) $(-3, 0)$, $(0, 2)$ & $(3, 0)$ (ii) $(0, 4)$, $(0, 0)$ and $(0, -4)$

SHORT ANSWER TYPE (I) QUESTIONS

21. For what value of k , $x^2 - 4x + k$ touches x -axis.
22. If the product of zeros of $ax^2 - 6x - 6$ is 4, find the value of a . Hence find the sum of its zeros.
23. If zeros of $x^2 - kx + 6$ are in the ratio 3 : 2, find k .
24. If one zero of the quadratic polynomial $(k^2 + k)x^2 + 68x + 6k$ is reciprocal of the other, find k .

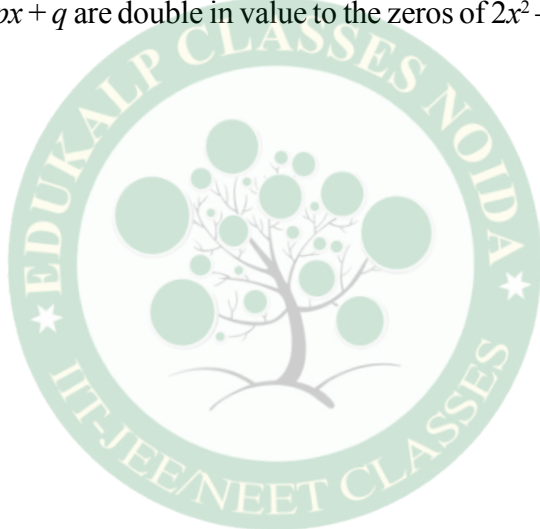
25. If α and β are the zeros of the polynomial $x^2 - 5x + m$ such that $\alpha - \beta = 1$, find m .
(CBSE)
26. If the sum of squares of zeros of the polynomial $x^2 - 8x + k$ is 40, find the value of k .
27. If α and β are zeros of the polynomial $t^2 - t - 4$, form a quadratic polynomial whose zeros are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$.
28. What should be added to the polynomial $x^3 - 3x^2 + 6x - 15$, so that it is completely divisible by $x - 3$?
(CBSE 2016)
29. If m and n are the zeros of the polynomial $3x^2 + 11x - 4$, find the value of $\frac{m}{n} + \frac{n}{m}$.
(CBSE, 2012)
30. Find a quadratic polynomial whose zeros are $\frac{3 + \sqrt{5}}{5}$ and $\frac{3 - \sqrt{5}}{5}$.
(CBSE, 2013)

SHORT ANSWER TYPE (II) QUESTIONS

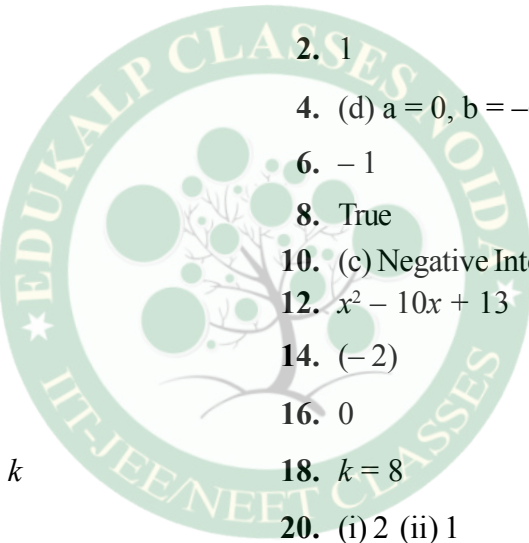
31. If $(k + y)$ is a factor of each of the polynomials $y^2 + 2y - 15$ and $y^3 + a$, find the values of k and a .
32. Obtain zeros of $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$ and verify relation between its zeroes and coefficients.
34. -5 is one of the zeros of $2x^2 + px - 15$, zeroes of $p(x^2 + x) + k$ are equal to each other. Find the value of k .
35. Find the value of k such that $3x^2 + 2kx + x - k - 5$ has the sum of zeros as half of their product.
36. If zeros of the polynomial $ax^2 + bx - c$, $a \neq 0$ are additive inverse of each other then what is the value of b ?
37. If α and β are zeros of $x^2 - x - 2$, find a polynomial whose zeros are $(2\alpha + 1)$ and $(2\beta + 1)$

LONG ANSWER TYPE QUESTIONS

38. If α and β are zeros of the polynomial $x^2 + 4x + 3$, find the polynomial whose zeros are $1 + \frac{\beta}{\alpha}$ and $1 + \frac{\alpha}{\beta}$. (CBSE)
39. If zeros of $x^2 - 5kx + 24$ are in the ratio $3 : 2$, find k .
40. Form a quadratic polynomial one of whose zero is $2 + \sqrt{5}$ and sum of the zeros is 4.
41. Form a polynomial whose zeros are the reciprocal of the zeros of $p(x) = ax^2 + bx + c$, $a \neq 0$.
42. If $(x + 2)$ is a factor of $x^2 + px + 2q$ and $p + q = 4$ then what are the values of p and q ?
43. If sum of the zeros of $5x^2 + (p + q + r)x + pqr$ is zero, then find $p^3 + q^3 + r^3$.
44. If the zeros of $x^2 + px + q$ are double in value to the zeros of $2x^2 - 5x - 3$ find p and q .



ANSWERS AND HINTS

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1. (b) 5
3. (b) -10
5. (b) 2
7. True
9. 1
11. (i) 1 (ii) 0
13. $k = 0, 5$
15. (i) 2 (ii) 0
17. $[3x^2 - 7x - 6] k$
19. (i) 1 (ii) 0
21. 4
23. -5, 5
25. 6
27. $4t^2 + t - 1$
28. On dividing $x^3 - 3x^2 + 6x - 15$ by $x - 3$, remainder is +3, hence -3 must be added to $x^3 - 3x^2 + 6x - 15$.
2. 1
4. (d) $a = 0, b = -6$
6. -1
8. True
10. (c) Negative Integer
12. $x^2 - 10x + 13$
14. (-2)
16. 0
18. $k = 8$
20. (i) 2 (ii) 1
22. $a = -\frac{3}{2}$, sum of zeroes = -4
24. 5
26. 12

$$29. \frac{m}{n} + \frac{n}{m} = \frac{m^2 + n^2}{mn} = \frac{(m+n)^2 - 2mn}{mn} = \frac{\left(-\frac{11}{3}\right)^2 - 2\left(-\frac{4}{3}\right)}{-\frac{4}{3}} = -\frac{145}{12}$$

$$30. \alpha + \beta = \frac{6}{5}, \quad \alpha\beta = \frac{4}{25},$$

$$25x^2 - 30x + 4$$

$$31. k = -3, 5 \text{ and } a = -27, 125$$

$$32. -\frac{2}{\sqrt{3}}, \frac{\sqrt{3}}{4}$$

$$34. \frac{7}{4}$$

$$36. b = 0$$

$$38. x^2 - \frac{16}{3}x + \frac{16}{3} \text{ or } \frac{1}{3}(3x^2 - 16x + 16)$$

$$39. k = 2$$

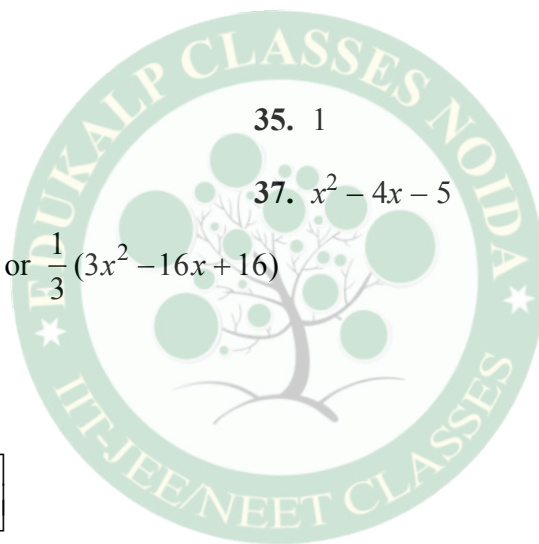
$$40. 2 - \sqrt{5}$$

$$41. k \left[x^2 + \frac{b}{c}x + \frac{a}{c} \right]$$

$$42. p = 4, q = 0$$

$$43. 3$$

$$44. a = 1, b = 7$$



$$35. 1$$

$$37. x^2 - 4x - 5$$