

Tarun Classes of Mathematics

IIT-JEE Mains | CBSE | PU-CET | NDA

CLASS 10 – CBSE | MATHEMATICS POLYNOMIALS

SECTION -A (Multiple choice questions)

- Let p be a prime number. The quadratic equation having its roots as factors of p is
(a) $x^2 - px + p = 0$ (b) $x^2 - (p+1)x + p = 0$ (c) $x^2 + (p+1)x + p = 0$ (d) $x^2 - px + p + 1 = 0$
- The zeroes of the quadratic polynomial $x^2 + 99x + 127$ are
(a) both positive (b) both negative (c) one positive and one negative (d) both equal
- The zeroes of a polynomial $ax^2 + bx + \frac{2a}{b}$ are reciprocal of each other then the value of b is
(a) -2 (b) 2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$
- If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 - p(x+1) - c$, then $(\alpha+1)(\beta+1)$ is equal to:
(a) $1+c$ (b) $1-c$ (c) $c-1$ (d) $2+c$
- The value of k such that the quadratic polynomial $x^2 - (k+6)x + 2(2k+1)$ has sum of the zeroes as half of their product, is :
(a) 2 (b) 3 (c) -5 (d) 5
- If zeroes of the quadratic polynomial $ax^2 + bx + c$ ($a, c \neq 0$) are equal, then
(a) c and b must have opposite signs (b) c and a must have opposite signs
(c) c and b must have same signs (d) c and a must have same signs
- What can you say about the zeros of quadratic polynomial : $x^2 - kx + k$, $k \neq 0$
(a) can't Both +ve (b) can't both -ve (c) not determined (d) always unequal
- The graph of a quadratic polynomial $p(x)$ passes through the points $(-6,0)$, $(0,-30)$, $(4,-20)$ and $(6,0)$.
The zeroes of the polynomial are
(a) -6,0 (b) 4,6 (c) -30,-20 (d) -6,6

SECTION - B

9. If the zeroes of the polynomial $x^2 + px + q$ are double in value to the zeroes of the polynomial $2x^2 - 5x - 3$, then find the values of p and q .
10. If one zero of the quadratic polynomial $f(x) = 4x^2 - 8kx + 8x - 9$ is negative of the other, then sum of zeroes of $kx^2 + 3kx + 2$.
11. If α and β are zeroes of the quadratic polynomial $x^2 - 6x + a$; find the value of 'a' if $3\alpha + 2\beta = 20$.
12. If one zero of the polynomial is $3 - \sqrt{5}$ and sum of the zeroes is 6, Find the Polynomial.
13. If squared difference of the zeroes of the polynomial $x^2 + ax + 45$ is equal to 144, find 'a'.
14. If α & β are the zeroes of the quadratic polynomial $f(x) = 3x^2 - 4x + 2$, find a quadratic polynomial whose zeroes are $\frac{1}{\beta}$ & $\frac{1}{\alpha}$.
15. If the zeroes of $x^2 + px + q$ are the two consecutive integers, then $p^2 - 1 = 4q$.
16. If one zero of the polynomial $p(x) = x^2 - 6x + c$ is the square of the other, Find the c & zeroes of $p(x)$.
17. If α & β are zeroes of the polynomial $p(x) = x^2 - 4x + 2$, then find the value of $(\alpha + 1)^{-2} + (\beta + 1)^{-2}$.
18. If α & β are the zeroes of the polynomial $2x^2 - 6x + 3$ then find $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} - 2\alpha\beta\left(\frac{1}{\beta} + \frac{1}{\alpha}\right)$.
19. If α & β are the zeroes of the polynomial $3x^2 + kx + 3$ & $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, then find the value of k .
20. It is given that the difference between the zeros of $4x^2 - 8kx + 9$ and $k > 0$ is 4 then find k .
21. Find the zeros of quadratic polynomials and verify the relationship between the zeros and their coefficients:
- $6y^2 - 7y + 2$
 - $3x^2 + 5\sqrt{2}x - 16$
 - $3x^2 - 2$

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CLASS 10 – CBSE | MATHEMATICS POLYNOMIALS - ANSWER KEY

SECTION – A (MCQ Answer Key)

1. (b) 2. (b) 3. (b) 4. (b) 5. (d) 6. (d) 7. (b) 8. (d)

SECTION – B (Answers)

9. $p = -5, q = -6$
10. Sum of zeroes = -3
11. $a = -16$
12. $x^2 - 6x + 4$
13. $a = \pm 18$
14. $2x^2 - 4x + 3$
15. Proved: $p^2 - 1 = 4q$
16. $c = 8$, zeroes 2 and 4 (or $c = -27$, zeroes -3 and 9)
17. $22/49$
18. -2
19. $k = \pm 15/2$
20. $k = 5/2$
21. (i) $2/3, 1/2$ (ii) $-8\sqrt{2}/3, \sqrt{2}$ (iii) $\sqrt{6}/3, -\sqrt{6}/3$