QB365

Important Questions - Polynomials

10th Standard CBSE

Maths

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 50

Section - A

1) If α and β are the roots of $ax^2 - bx + c = 0$ $(a \neq 0)$, then calculate $\alpha + \beta$. **1**

2) If sum of the zeroes of the quadatic polynomial $3x^2 - kx + 6$ is 3, then find the value of k. **1**

3) If - 1 is a zero of the polynomial $f(x) = x^2 - 7x - 8$, then calculate the other zero. **1**

4) Find a quadratic polynomial with zeroes $3 + \sqrt{2}$ and $3 - \sqrt{2}$. **1**

5) Find the zeroes of the quadratic polynomial $3x^2+11x-4$, then find the value of $\frac{m}{n} + \frac{n}{m}$. **1**

6) The sum and the product of a zeroes of the polynomial $f(x)=4x^2-27x+3k^2$ are equal. Find the value of k. **1**

7) Find all the zeroes of $f(x) = x^2 - 2x$ **1**

8) Find the value of k, if - 1 is a zero of the polynomial $p(x) = kx^2 - 4x + k$. **1**

9) If one zero of the polynomial $2x^2 + 3x + \lambda$ is $\frac{1}{2}$, find the value of λ and other zero. **1**

10) Find the value for k for which $x^4 + 10x^3 + 25x^2 + 15x + k$ is exactly divisible by x + 7. **1**

Section - B

11) Write the degree of the following polynomials. **2**

(i) $7q^6 + 4q^2 + \frac{3}{2} + q - 8$

(ii) x^3-3

12) If a and β are the zeroes of the quadratic polynomial $f(x)=ax^{2+bx+c}$, then find the difference between the zeroes. **2**

$(\alpha - \beta)^2 = (\alpha + \beta)^2 - 4\alpha\beta \quad or \quad (\alpha - \beta) = \pm\sqrt{(\alpha + \beta)^2 - 4\alpha\beta}$

13) Find the zeroes of the following quadratic polynomial and verify the relationship between the zeroes and their coefficients. $q(x) = \sqrt{3x^2} + 10x + 7\sqrt{3}$ **2**

14) Find all the zeroes of $2x^4-3x^3-3x^2+6x-2$, if you know that two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$. **2**

15) Divide the polynomial p(x) by the polynomial g(x) and find quotient and remainder in each of the following. **2**

(i) $p(x)=x^3-3x^2+5x-3$, $g(x)=x^2-2$

(ii) $p(x)=x^4-3x^2+4x+5$, $g(x)=x^2+1-x$

(iii) $p(x)=x^4-5x+6$, $g(x)=2-x^2$

16) If zeroes of the polynomial $x^2 + 4x + 2a$ are α and $\frac{2}{\alpha}$, then find the value of a. **2**

17) If the sum and product of the zeroes of the polynomial $ax^2 - 5x + c$ is equal to 10 each, find the value of 'a' and 'c'. **2**

18) If α and β are the zeroes of the polynomial $6y^2 - 7y + 2$, find a quadratic polynomial whose zeroes are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$ **2**

19) Show that $\frac{1}{2}$ and $\frac{-3}{2}$ are the zeroes of the polynomial $4x^2 + 4x - 3$ and verify the relationship between zeroes and coefficients of the polynomial. **2**

20) Find the zeroes of the quadratic polynomial $5x^2 + 8x - 4$ and verify the relationship between the zeroes and the coefficients of the polynomial. **2**

Section - C

21) Identify the type of the polynomials given below: **5**

(i) $f(p) = 3 - p^2 + \sqrt{7}p$

(ii) $p(v) = \sqrt{3v^4} - \frac{2}{3}v + 7$

(iii) $q(x) = \frac{\sqrt{2}}{5}x^3 + 1$

22) Ajay, Ankit and Vijay respectively calculated the following polynomials with sum of the zeroes as 18 and product of the zeroes as 81. **5**

x^2-18x+81, x^2+18x-81, $2x^2$-9x-81

They discussed their solutions among themselves and point out mistakes in the calculations.

(i) Whose calculation is correct?

(ii) What are the values depict here?

23) Polynomial $x^4 + 7x^3 + 7x^2 + px + q$ is exactly divisible by $x^2 + 7x + 12$, then find the value of p and q. **5**

24) If α and β are the zeroes of the polynomial $p(x) = 2x^2 + 5x + k$ satisfying the relation, $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, then find the value of k. **5**

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