

Mathematics

Time: 1 Hour

(Polynomials) (Test – 2) (Class X)

MM. 25

1 mark each

1. If α and $\frac{1}{\alpha}$ are the zeroes of the polynomial $4x^2 - 2x + (k - 4)$, find the value of k .
2. Find a quadratic polynomial whose one zero is 8 and the product of zeroes is -36 .

2 marks each

3. Form a quadratic polynomial whose zeroes are $\frac{3-\sqrt{3}}{5}$ and $\frac{3+\sqrt{3}}{5}$.
4. Find the quadratic polynomial whose zeroes are in the ratio of 2:3 and their sum is 15.
5. For the polynomial $p(x) = (a + 1)x^2 + (2a + 3)x + (3a + 4)$, the sum of zeroes is -1 , find the value of a .

3 marks each

6. If $x^2 + x - 12$, divides $p(x) = x^3 + ax^2 - bx - 64$, find the value of a and b .
7. If $(x + \alpha)$ is the factor of two polynomials $x^2 + px + q$ and $x^2 + mx + n$, then prove that $\alpha = \frac{n-q}{m-p}$.

8. If α and β are the zeroes of the polynomial $x^2 - 5x + 6$, find a polynomial whose zeroes are $2\alpha - 1$ and $2\beta - 1$.

4 marks each

9. If two zeroes of the polynomial $x^4 - 6x^3 - 26x^2 + 138x - 35$ are $2 + \sqrt{3}$ and $2 - \sqrt{3}$, find the other zeroes.
10. If α and β are the zeroes of the polynomial $p(x) = 2x^2 + 5x + k$, such that $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, find the value of k .



Answers

1. $k = 8$
2. $2x^2 - 9x - 72$
3. $25x^2 - 30x + 6$
4. $x^2 - 15x + 54$
5. $a = -2$.
6. $a = 1$ and $b = -6$.
7. Hint: put $-\alpha$ in both the equation and solve them.
8. $2x^2 - 8x + 15$.
9. Other zeroes are 7 and -5 .
10. $k = 2$.

