Multiple Choice Questions

(1 mark each)

1. If the sum of the square of the zeroes of the polynomial $p(x) = x^2 + 7x + k$ is 25, then k is equal to

(a) 12 (b) 49 (c) −24 (d) −12

2. Zeroes of a polynomial $p(y)$ is..... of the point, where the graph intersects the Y-axis.

(a) abscissa
(b) ordinate
(c) Both (a) and (b)
(d) None of these

3. If -4 is a zero of the polynomial $x^2 - 2x - (7m + 3)$, then find the value of m.

(a) 3 (b) 2 (c) 4 (d) − 2

4. If the zeroes of polynomial $x^2 - 8x + k$ are the HCF of (6, 12), then find the value of k.

(a) 6
(b) 12
(c) 24
(d) None of these

5. If a and b are the zeroes of a polynomial $px^2 - 5x + q$, then the values of p and q, if $a + b = ab = 10$, are

(a) 5 and 1/2
(b) 5 and 2
(c) 1/2 and 5
(d) 10 and 1

Short Answer Type (I) Questions

(2 marks each)

6. Find the quadratic polynomial, whose sum of zeroes is −3 and product of zeroes is 5.

7. If one of the zeroes of the quadratic polynomial $f(x) = 4x^2 - 8kx - 9$ is equal in magnitude but opposite in sign of the other, then find the value of k.

8. Find the zeroes of the quadratic polynomial $7y^2 - \frac{11}{3}y - \frac{2}{3}$ and verify the relationship between the zeroes and their coefficients.

9. Find the quadratic polynomial whose zeroes are $2\sqrt{7}$ and $-5\sqrt{7}$.

Short Answer Type (II) Questions

(3 marks each)

10. Find the value of k for which $a - 3b$ is a factor of $a^4 - 7a^2b^2 + kb^4$. Hence, for the value of k, factorise $a^4 - 7a^2b^2 + kb^4$ completely.

11. If α and β be the zeroes of the polynomial $P(x) = x^2 - 5x + 2$, find the value of $\frac{1}{\alpha} + \frac{1}{\beta} - 3\alpha\beta$.

12. If α and β are the zeroes of the polynomials $ax^2 + bx + c$, then find the other polynomial whose zeroes are $\frac{\alpha^2}{\beta}$ and $\frac{\beta^2}{\alpha}$.

Long Answer Type Questions

(5 marks each)

13. If α and β are the zeroes of the quadratic polynomial $f(x) = kx^2 + 4x + 4$, such that $\alpha^2 + \beta^2 = 24$, then find the value(s) of k.

14. If α and β are the zeroes of a quadratic polynomial $3x^2 - 6x + 4$, then find the value of

$$\left(\frac{\alpha}{\beta} + \frac{\beta}{\alpha}\right) + 2\left(\frac{1}{\alpha} + \frac{1}{\beta}\right) + 3\alpha\beta.$$

Answers

1. (a) 2. (b) 3. (a) 4. (b) 5. (c)

6. $x^2 + 3x + 5$ 7. $k = 0$ 8. $\frac{2}{3}$ and $\frac{-1}{7}$ 9. $x^2 + 3\sqrt{7}x - 70$

For Solution scan QR code

10. $k = -18$ and $(a + 3b)(a - 3b)(a^2 + 2b^2)$

11. $\frac{-7}{2}$ 12. $x^2 + \frac{b}{a^2c}(b^2 - 3ac)x + \frac{c}{a}$

13. $k = \frac{2}{3}$ or -1 14. 8