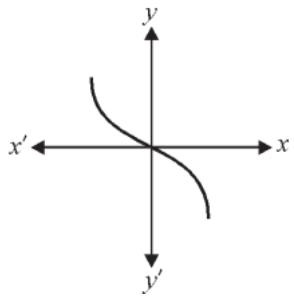
POLYNOMIALS CM23M100201

Multiple Choice Questions: **1 mark each**

1. If one of the zeroes of the quadratic polynomial $(k - 1)x^2 + kx + 1$ is (-3), then k equal to :

(a) $\frac{4}{3}$ (b) $-\frac{4}{3}$ (c) $\frac{2}{3}$ (d) $-\frac{2}{3}$

2. The graph of y = f(x) is shown. The number of zeroes of f(x) is :

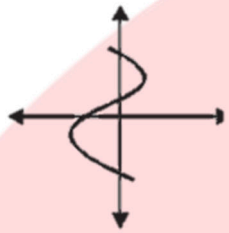


(a) 3 (b) 1 (c) 0 (d) 2

3. The quadratic polynomial having zeroes as 1 and –2 is :

(a) $x^2 - x + 2$ (b) $x^2 - x - 2$ (c) $x^2 + x - 2$ (d) $x^2 + x + 2$

4. The graph of y = p(x), where p(x) is a polynomial is shown. The number of zeroes of p(x) is :



(a) 3 (b) 4 (c) 1 (d) 2

5. If (x + 1) is a factor of $x^2 - 3ax + 3a - 7$, then the value of a is :

(a) 1 (b) –1 (c) 0 (d) –2

Very Short Answer Type Questions : **2 marks each**

6. Write the polynomial, the product and sum of whose zeroes are $-\frac{9}{2}$ and $-\frac{3}{2}$ repectively.

7. Write the zeroes of the polynomial $x^2 - x - 6$.

Short Answer Type Questions : **3 marks each**

8. If α and β are zeroes of the quadratic polynomial $x^2 - 6x + a$; find the value of a if $3\alpha + 2\beta = 20$.

9. Find the zeroes of the polynomial $4x^2 + 5\sqrt{2}x - 3$ and verify the relationship between the zeroes and the coefficients.

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

Long Answer Type Questions : **4 marks each**

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 α, β are the zeroes of the quadratic polynomial f(x) = x^2 – px + q, prove that $\frac{\alpha^2}{\beta^2} + \frac{\beta^2}{\alpha^2} = \frac{p^4}{q^2} - \frac{4p^2}{q} + 2$.

13. If α, β are the zeroes of the quadratic polynomial f(x) = x^2 + px + q, form a polynomial whose zeroes are $(\alpha + \beta)^2$ and $(\alpha - \beta)^2$.