1. If one of the zeroes of the quadratic polynomial $x^2+ 3x + k$ is 2, then the value of k is
(a) 10 **(b)** –10 **(c)** –7 **(d)** –2

2. The quadratic polynomial, the sum of whose zeroes is –5 and their product is 6, is

(a) $x^2 + 5x + 6$ **(b)** $x^2 – 5x + 6$ **(c)** $x^2 – 5x – 6$ **(d)** $–x^2 + 5x + 6$

3. Divide the polynomial $f(x) = 3x^2 – x^3 – 3x + 5$ by the polynomial $g(x) = x – 1 – x^2$ and verify the division algorithm.

4. If 4 is the zero of the cubic polynomial $x^3– 3x^2 – 10x + 24$, find its other two zeroes.

5. The zeroes of the polynomial $x^2 – 3x – m (m + 3)$ are
(a) m, m + 3 (b) –m, m + 3 (c) m, –(m + 3) (d) –m, –(m + 3)

6. A teacher asked 10 of his students to write a polynomial in one variable on a paper and then to handover the paper. The following were the answers given by the students :

$2x + 3$, $3x^2 + 7x + 2$, $4x^3 + 3x^2 + 2$, $x^3 + \sqrt{3x} + 7$, $7x + \sqrt{7}$, $5x^3 – 7x + 2$,
$2x^2 + 3 – \frac{5}{x}$, $5x – \frac{1}{2}$, $ax^3 + bx^2 + cx + d$, $x + \frac{1}{x}$.

Answer the following questions:
(i) How many of the above ten, are not polynomials?
(ii) How many of the above ten, are quadratic polynomials?

7. In fig. 1, the graph of the polynomial $p(x)$ is given. The number of zeroes of the polynomial is

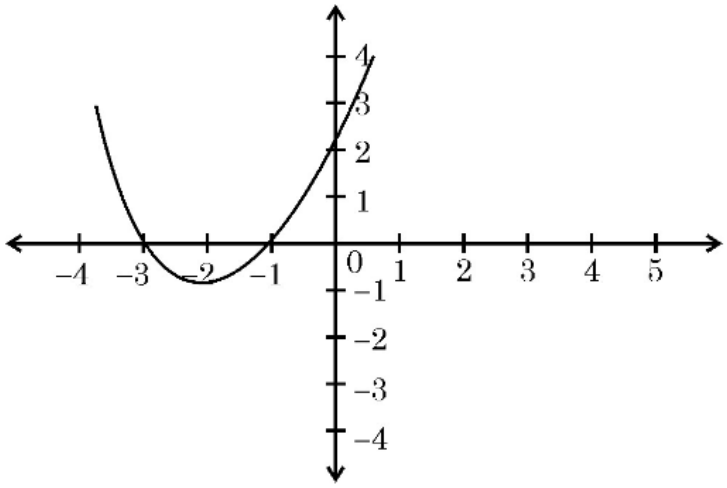

Fig. 1

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

8. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial g(x), the quotient and remainder were $x - 2$ and $-2x + 4$ respectively. Find g(x).

9. If the sum of the squares of zeros of the quadratic polynomial $f(x) = x^2 - 8x + k$ is 40, find the value of k.

10. The number of zeroes for a polynomial p(x) where graph of y = p(x) is given in Figure-1, is (A) 3 (B) 4 (C) 0 (D) 5

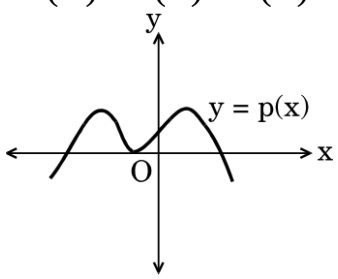

Figure-1

11. Obtain other zeroes of the polynomial $f(x) = 2x^4 + 3x^3 - 5x^2 - 9x - 3$ if two of its zeroes are $\sqrt{3}$ and $-\sqrt{3}$

12. Without actually calculating the zeroes, form a quadratic polynomial whose zeroes are reciprocals of the zeroes of the polynomial $5x^2 + 2x - 3$.

13. On dividing a polynomial p(x) by $x^2 - 4$, quotient and remainder are found to be x and 3 respectively. The polynomial p(x) is

(A) $3x^2 + x - 12$

(B) $x^3 - 4x + 3$

(C) $x^2 + 3x - 4$

(D) $x^3 - 4x - 3$

14. Can $(x^2 - 1)$ be a remainder while dividing $x^4 - 3x^2 + 5x - 9$ by $(x^2 + 3)$? Justify your answer with reasons.

15. Obtain other zeroes of the polynomial

$$p(x) = 2x^4 - x^3 - 11x^2 + 5x + 5$$

if two of its zeroes are $\sqrt{5}$ and $-\sqrt{5}$.

16. What minimum must be added to $2x^3 - 3x^2 + 6x + 7$ so that the resulting polynomial will be divisible by $x^2 - 4x + 8$?

17. Find all the zeroes of the polynomial

$$2x^4 - 5x^3 - 11x^2 + 20x + 12$$

if it is given that two of its zeroes are 2 and -2.

16. Obtain all the zeros of the polynomial $x^4+4x^3-2x^2-20x-15$, if two of its zeroes are $\sqrt{5}$ and $-\sqrt{5}$.