DNG TUTORIAL

Crack the Concepts, Not just the Exams

Class Xth
Chapter 2– Polynomials

Q.1 Find the zeros of the polynomial $f(x) = x^2 + 7x + 12$ and verify the relation between its zeros and coefficients.

1. $\frac{-7}{2}, \frac{12}{1}$

Q.2 Find the zeros of the polynomials $f(x) = 2x^2 + 5x – 12$ and verify the relation between its zeros and coefficients.

2. $\frac{-5}{2}, \frac{-12}{2}$

Q.3 Find the zeros of the polynomials $f(x) = x^2 – 2$ and verify the relation between its zeros and coefficients.

3. $\frac{0}{1}, \frac{-2}{1}$

Q.4 Obtain the zeros of the quadratic polynomial $\sqrt{3}\,x^2 – 8x + 4\sqrt{3}$ and verify the relation between its zeros and coefficients. **[CBSE 2008C]**

4. $\frac{8}{\sqrt{3}}, \frac{4\sqrt{3}}{\sqrt{3}}$

Q.5 Find a quadratic polynomial, the sum and product of whose zeros are –5 and 6 respectively.

5. $f(x) = x^2 + 5x + 6$

Q.6 If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other, find the value of a. **[CBSE 2008]**

6. a = 3

Q.7 Find a quadratic polynomial whose zeros are 1 and –3. Verify the relation between the coefficients and zeros of the polynomial. **[CBSE 2008C]**

7. $\frac{-2}{1}, \frac{-3}{1}$

Q.8 If the product of the zero of the polynomial $(ax^2 – 6x – 6)$ is 4, find the value of a. **[CBSE 2008]**

8. $a = \frac{-3}{2}$

EXERCISE 2A

Q 1. Find the zeros of the quadratic polynomial $(x^2 + 3x -10)$ and verify the relation between its zeros and coefficients.

Q 2. Find the zeros of the quadratic polynomial $(6x^2 - 7x - 3)$ and verify the relation between its zeros and coefficients.

Q 3. Find the zeros of the quadratic polynomial $4x^2 - 4x - 3$ and verify the relation between the zeros and the coefficients. **[CBSE 2008C]**

Q 4. Find the zeros of the quadratic polynomial $5x^2 - 4 - 8x$ and verify the relationship between the zeros and the coefficients of the given polynomial. **[CBSE 2008]**

Q 5. Find the zeros of the quadratic polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeros and the coefficients of the given polynomial. **[CBSE 2008]**

Q 6. Find the zeros of the quadratic polynomial $2x^2 - 11x + 15$ and verify the relation between the zeros and the coefficients.

Q 7. Find the zeros of the quadratic polynomial $(x^2 - 5)$ and verify the relation between the zeros and the coefficients.

Q 8. Find the zeros of the quadratic polynomial $(8x^2 - 4)$ and verify the relation between the zeros and the coefficients.

Q 9. Find the zeros of the quadratic polynomial $(5u^2 + 10u)$ and verify the relation between the zeros and the coefficients.

Q 10. Find the quadratic polynomial whose zeros are 2 and -6. Verify the relation between the coefficients and the zeros of the polynomial.

Q 11. Find the quadratic polynomial whose zeros are $\frac{2}{3}$ and $\frac{-1}{4}$. Verify the relation between the coefficients and the zeros of the polynomial.

Q 12. Find the quadratic polynomial, sum of whose zeros is 8 and their product is 12. Hence, find the zeros of the polynomial. **[CBSE 2008]**

Q 13. Find the quadratic polynomial, the sum of whose zeros is -5 and their product is 6. Hence, find the zeros of the polynomial.

Q 14. Find the quadratic polynomial, the sum of whose zeros is $\left(\frac{5}{2}\right)$ and their product is 1. Hence, find the zeros of the polynomial.

Q 15. Find the quadratic polynomial, the sum of whose zeros is 0 and their product is -1. Hence, find the zeros of the polynomial.

Q 16. Find the quadratic polynomial, the sum of whose zeros is $\sqrt{2}$ and their product is -12. Hence, find the zeros of the polynomial.

HINT $x^2 - \sqrt{2}x - 12 = 0 \Rightarrow x^2 - 3\sqrt{2}x + 2\sqrt{2}x - 12 = 0 \Rightarrow (x - 3\sqrt{2})(x + 2\sqrt{2}) = 0$.

Q 17. If α, β are the zeros of a polynomial, such that $\alpha + \beta = 6$ and $\alpha\beta = 4$, then write the polynomial. **[CBSE 2010]**

ANSWERS (EXERCISE 2A)

1. -5,2 2. $\frac{3}{2}, \frac{-1}{3}$ 3. $\frac{3}{2}, \frac{-1}{2}$ 4. 2, $\frac{-2}{5}$ 5. $\frac{3}{2}, \frac{-1}{3}$ 6. 3,1 7. $\sqrt{5}, -\sqrt{5}$

8. $\frac{1}{\sqrt{2}}, \frac{-1}{\sqrt{2}}$ 9. –2, 0 10. $x^2 + 4x – 12$ 11. $12x^2 - 5x - 2$ 12. $(x^2 - 8x + 12)$, {6, 2} 13. $(x^2 + 5x + 6)$, {-3, -2} 14. $2x^2 - 5x + 2$, $\left\{2, \frac{1}{2}\right\}$ 15. $(x^2 - 1)$, {1, -1} 16. $(x^2 - \sqrt{2}\,x - 12)$, $\{3\sqrt{2}, -2\sqrt{2}\}$ 17. $x^2 - 6x + 4$

Q.1 Verify that 2, –3 and 4 are the zeros of the cubic polynomial $p(x) = (x^3 – 3x^2 – 10x + 24)$. Also verify the relation between the zeros and coefficients of p(x).

1. $3, \frac{-10}{1}, \frac{-24}{1}$

Q.2 Verify that 3, –1 and $\frac{-1}{3}$ are the zeros of the cubic polynomials $p(x) = 3x^3 – 5x^2 – 11x – 3$ and verify the relation between its zeros and coefficients.

2. $\frac{5}{3}, \frac{-11}{3}, \frac{3}{3}$

Q.3 Find a cubic polynomial with the sum of its zeros, sum of the products of its zeros taken two at a time and the product of its zeros as 2, –7 and –14 respectively.

3. $x^3 – 2x^2 – 7x + 14$

Q.4 If the zeros of the polynomial $x^3 – 3x^2 + x + 1$ are (a – b), a, (a + b), find a and b.

4. a = 1 and b = $\pm \sqrt{2}$

Q.5 Find a cubic polynomial whose zero are 3, 5 and –2.

5. -1, -30

Q.6 Divide $3 – x + 2x^2$ by (2 – x) and verify the division algorithm.

Q.7 Divide $5x^3 – 13x^2 + 21x – 14$ by $(3 – 2x + x^2)$ and verify the division algorithm.

Q.8 What real number should be subtracted from the polynomial $(3x^3 + 10x^2 – 14x + 9)$ so that (3x – 2) divides it exactly? **[CBSE 2009C]**

8. 5

Q.9 On dividing $(x^3 – 3x^3 + x + 2)$ by a polynomial g(x), the quotient and remainder are (x – 2) and (–2x + 4) respectively. Find g(x). **[CBSE 2009C]**

9. $g(x) = (x^2 – x + 1)$

Q.10 If the polynomial $(x^4 + 2x^3 + 12x + 18)$ is divided by another polynomial $(x^2 + 5)$, the remainder comes out to be (px + q). Find the values of p and q. **[CBSE 2009]**

10. p = 2 and q = 3

Q.11 It being given that 1 is a zero of the polynomial $(7x – x^3 – 6)$. Find its other zeros.

11. -3 and 2

Q.12 Obtain all zeros of the polynomial $(2x^3 – 4x – x^2 + 2)$, if two of its zeros are $\sqrt{2}$ and $-\sqrt{2}$.

[CBSE 2008C]

12. $\sqrt{2}, -\sqrt{2}$ and $\frac{1}{2}$

Q.13 Obtain all zeros of($3x^4 - 15x^3 + 13x^2 + 25x - 30$), if two of its zeros are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$

[CBSE 2009C]

13. $\sqrt{\frac{5}{3}}, -\sqrt{\frac{5}{3}}, 2$ and 3

Q.14 If two zeros of the polynomial f(x) = ($x^4 - 6x^3 - 26x^2 + 138x - 35$) are ($2 + \sqrt{3}$) and ($2 - \sqrt{3}$), find other zeros.

14. 7 and -5

EXERCISE 2B

Q 1. Verify that 3,-2,1 are the zeros of the cubic polynomial p(x) = $x^3 - 2x^2 - 5x + 6$ and verify the relation between its zeros and coefficients.

Q 2. Verify that 5,-2 and $\frac{1}{3}$ are the zeros of the cubic polynomial p(x) = $3x^3 - 10x^2 - 27x + 10$ and verify the relation between its zeros and coefficients.

Q 3. Find a cubic polynomial whose zeros are -2, - 3 and -1.

Q 4. Find a cubic polynomial whose zeros are 3, $\frac{1}{2}$ and -1.

Q 5. When f(x) = $4x^3 - 8x^2 + 8x + 1$ is divided by a polynomial g(x), we get (2x -1) as quotient and (x + 3) as remainder. Find g(x).

Q 6. Divide ($2x^2 + x - 15$) by (x + 3) and verify the division algorithm.

Q 7. Divide ($12 - 17x - 5x^2$) by (3 -5x) and verify the division algorithm.

Q 8. Divide ($3x^3 - 4x^2 + 7x - 2$) by ($x^2 - x + 2$) and verify the division algorithm.

Q 9. Divide ($6 + 19x + x^2 - 6x^3$) by ($2 + 5x - 3x^2$) and verify the division algorithm.

Q 10. It being given that 2 is one of the zeros of the polynomial $x^3 - 4x^2 + x + 6$. Find its other zeros.

Q 11. It is given that -1 is one of the zeros of the polynomial $x^3 + 2x^2 - 11x - 12$. Find all the zeros of the given polynomial.

Q 12. If 1 and -2 are two zeros of the polynomial ($x^3 - 4x^2 - 7x + 10$), find its third zero.

Q 13. If 3 and-3 are two zeros of the polynomial ($x^4 + x^3 - 11x^2 - 9x + 18$),find all the zeros of the given polynomial.

Q 14. If 2 and -2 are two zeros of the polynomial ($x^4 + x^3 - 34x^2 - 4x + 120$), find all the zeros of the given polynomial. **[CBSE 2008]**

Q 15. Find all the zeros of ($x^4 + x^3 - 23x^2 - 3x + 60$), if it is given that two of its zeros are $\sqrt{3}$ and $-\sqrt{3}$. **[CBSE 2009C]**

Q 16. Find all the zeros of ($2x^4 - 3x^3 - 5x^2 + 9x - 3$), it being given that two of its zeros are $\sqrt{3}$ and $-\sqrt{3}$.

Q 17. Find all the zeros of the polynomial ($2x^4 - 11x^3 + 7x^2 + 13x - 7$), it being given that two if its zeros are ($3 + \sqrt{2}$) and ($3 - \sqrt{2}$).

Q 18. Obtain all other zeros of ($x^4 + 4.x^3 - 2x^2 - 20x - 15$) if two of its zeros are $\sqrt{5}$ and $-\sqrt{5}$. **[CBSE 2009C]**

ANSWERS (EXERCISE 2B)

3.($x^3 + 6x^2 + 11x + 6$) 4.($2x^3 - 5x^2 - 4x + 3$) 5.($2x^2 - 3x + 2$) 6.($2x - 5$) 7.($x + 4$) 8.($3x - 1$) 9.($2x + 3$) 10.3, -1 11. -4, -1, 3 12. 5 13.1, -2, 3, -3 14. 2, -2, -6, 5

15. $\sqrt{3}$, $-\sqrt{3}$, 4, -5 16. $\sqrt{3}$, $-\sqrt{3}$, 1, $\frac{1}{2}$ 17.(3 + $\sqrt{2}$, (3 - $\sqrt{2}$) $\frac{1}{2}$, -1 18, -1,-3

CCE QUESTIONS

Objective Questions

MCQ (2 marks)

Q 1. Which of the following is a polynomial?

(a) $x^2 - 5x + 6\sqrt{x} + 3$ (b) $x^{3/2} - x + x^{1/2} + 1$ (c) $\sqrt{x} + \frac{1}{\sqrt{x}}$ (d) None of these

Q 2. Which of the following is not a polynomial?

(a) $\sqrt{3}\,x^2 - 2\sqrt{3}\,x + 5$ (b) $9x^2 - 4x + \sqrt{2}$ (c) $\frac{3}{2}x^3 + 6x^2\ \frac{1}{\sqrt{2}} - 8$ (d) $x + \frac{3}{x}$

Q 3. The zeros of the polynomial $x^2 - 2x - 3$ are

(a) -3, 1 (b) -3, -1 (c) 3, -1 (d) 3, l

Q 4. The zeros of the polynomial $x^2 - \sqrt{2}\,x - 12$ are

(a) $\sqrt{2}$, $-\sqrt{2}$ (b) $3\sqrt{2}$, $-2\sqrt{2}$ (c) $-3\sqrt{2}$, $2\sqrt{2}$ (d) $3\sqrt{2}$, $2\sqrt{2}$

Q 5. The zeros of the polynomial $4x^2 + 5\sqrt{2}\,x - 3$ are

(a) $-3\sqrt{2}$, $\sqrt{2}$ (b) $-3\sqrt{2}\ \frac{\sqrt{2}}{2}$ (c) $\frac{-3\sqrt{2}}{2}, \frac{\sqrt{2}}{4}$ (d) none of these

Q 6. The zeros of the polynomial $x^2 + \frac{1}{6}x - 2$ are

(a) –3, 4 (b) $\frac{-3}{2}, \frac{4}{3}$ (c) $\frac{-4}{3}, \frac{3}{2}$ (d) none of these

Q 7. The zeros of the polynomial $7y^2 - \frac{11}{3}y - \frac{2}{3}$ are

(a) $\frac{2}{3}, \frac{-1}{7}$ (b) $\frac{2}{7}, \frac{-1}{3}$ (c) $\frac{-2}{3}, \frac{1}{7}$ (d) none of these

Q 8. A quadratic polynomial whose zeros are 5 and -3, is

(a) $x^2 + 2x - 15$ (b) $x^2 - 2x + 15$ (c) $x^2 - 2x - 15$ (d) none of these

Q 9. A quadratic polynomial whose zeros are $\frac{3}{5}$ and $\frac{-1}{2}$, is

(a) $10x^2 + x + 3$ (b) $10x^2 + x - 3$ (c) $10x^2 – x + 3$ (d) $x^2 - \frac{1}{10}x - \frac{3}{10}$

Q 10. The sum and product of the zeros of a quadratic polynomial are 3 and -10 respectively. The quadratic polynomial is

(a) $x^2 - 3x + 10$ (b) $x^2 + 3x - 10$ (c) $x^2 - 3x - 10$ (d) $x^2 + 3x + 10$

Q 11. How many polynomials are there having 4 and -2 as zeros?

(a) One (b) Two (c) Three (d) More than three

Q 12. The zeros of the quadratic polynomial $x^2 + 88x + 125$ are

(a) both positive (b) both negative (c) one positive and one negative (d) both equal

Q 13. If α and β are the zeros of $x^2 + 5x + 8$, then the value of $(\alpha + \beta)$ is

(a) 5 (b) -5 (c) 8 (d) -8

Q 14. If a and p are the zeros of $2x^2 + 5x - 9$, then the value of $\alpha\beta$ is

(a) $\frac{-5}{2}$ (b) $\frac{5}{2}$ (c) $\frac{-9}{2}$ (d) $\frac{9}{2}$

Q 15. If one zero of the quadratic polynomial $kx^2 + 3x + k$ is 2, then the value of k is

(a) $\frac{5}{6}$ (b) $\frac{-5}{6}$ (c) $\frac{6}{5}$ (d) $\frac{-6}{5}$

Q 16. If one zero of the quadratic polynomial $(k – 1)x^2 + kx + 1$ is -4, then the value of k is

(a) $\frac{-5}{4}$ (b) $\frac{5}{4}$ (c) $\frac{-4}{3}$ (d) $\frac{4}{3}$

Q 17. If -2 and 3 are the zeros of the quadratic polynomial $x^2 + (a + 1)x + b$, then

(a) a = -2, b = 6 (b) a = 2, b = - 6 (c) a = - 2, b = - 6 (d) a = 2, b = 6

Q 18. If one of the zeros of the quadratic polynomial $x^2 + bx + c$ is negative of the other, then

(a) b = 0 and c is positive (b) b = 0 and c is negative

(c) $b \neq 0$ and c is positive (d) $b \neq 0$ and c is negative

Q 19. If the zeros of the quadratic polynomial $ax^2 + bx + c$, where $a \neq 0$ and $c \neq 0$, are equal, then

(a) c and a have the same sign (b) c and a have opposite signs

(c) c and b have the same sign (d) c and b have opposite signs

Q 20. The zeros of the quadratic polynomial $x^2 + kx + k$, where k > 0

(a) are both positive (b) are both negative
(c) are always equal (d) are always unequal

Q 21. If one zero of $3x^2 + 8x + k$ be the reciprocal of the other, then k = ?

(a) 3 (b)-3 (c) $\frac{1}{3}$ (d) $\frac{-1}{3}$

Q 22. If the sum of the zeros of the quadratic polynomial $kx^2 + 2x + 3k$ is equal to the product of its zeros, then k = ?

(a) $\frac{1}{3}$ (b) $\frac{-1}{3}$ (c) $\frac{2}{3}$ (d) $\frac{-2}{3}$

Q 23. If α, β are the zeros of $f(x) = 2x^2 + 6x - 6$, then

(a) $\alpha + \beta = \alpha\beta$ (b) $\alpha + \beta > \alpha\beta$ (c) $\alpha + \beta < \alpha\beta$ (d) $\alpha + \beta + \alpha\beta = 0$

Q 24. If α, β are the zeros of the polynomial $x^2 - 5x + c$ and $\alpha - \beta = 1$, then c =?

(a) 0 (b) 1 (c) 4 (d) 6

Q 25. If α, β are the zeros of the polynomial $x^2 + 6x + 2$, then $\left(\frac{1}{\alpha} + \frac{1}{\beta}\right)$ = ?

(a) 3 (b) -3 (c) 12 (d) -12

Q 26. If α, β, γ be the zeros of the polynomial $x^3 - 6x^2 - x + 30$, then $(\alpha\beta + \beta\gamma + \gamma\alpha)$=?

(a) -1 (b) 1 (c) -5 (d) 30

Q 27. If α, β, γ are the zeros of the polynomial $2x^3 + x^2 - 13x + 6$, then $\alpha\beta\gamma$ = ?

(a) -3 (b) 3 (c) $\frac{-1}{2}$ (d) $\frac{-13}{2}$

Q 28. If α, β, γ be the zeros of the polynomial p(x) such that $(\alpha + \beta + \gamma) = 3$, $(\alpha\beta + \beta\gamma + \gamma\alpha) = -10$ and $\alpha\beta\gamma = -24$, then p(x) = ?

(a) $x^3 + 3x^2 - 10x + 24$ (b) $x^3 + 3x^2 + 10x - 24$ (c) $x^3 - 3x^z - 10x + 24$ (d) None of these

Q 29. If two of the zeros of the cubic polynomial $ax^3 + bx^2 + cx + d$ are 0, then the third zero is

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

Q 30. If one of the zeros of the cubic polynomial $ax^3 + bx^2 + ex + d$ is 0, then the product of the other two zeros is

(a) $\frac{-c}{a}$ (b) $\frac{c}{a}$ (c) 0 (d) $\frac{-b}{a}$

Q 31. If one of the zeros of the cubic polynomial $x^3 + ax^2 + bx + c$ is -1, then the product of the other two zeros is

(a) a – b - l (b) b – a – l (c) 1- a + b (d) l + a – b

Q 32. If the zeros of the polynomial $x^3 - 3x^2 + x + 1$ are a - d, a and a + d, then a + d is

(a) a natural number (b) an integer (c) a rational number (d) an irrational number

Q 33. If α , β be the zeros of the polynomial $x^2 - 8x + k$ such that $\alpha^2 + \beta^2 = 40$, then k = ?

(a) 6 (b) 9 (c) 12 (d) -12

Q 34. If α, β be the zeros of the polynomial $2x^2 + 5x + k$ such that $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, then k = ?

(a) 3 (b) -3 (c) -2 (d) 2

Q 35. On dividing a polynomial p(x) by a non-zero polynomial q(x), let g(x) be the quotient and r(x) be the remainder, then p(x) = q(x).g(x) + r(x), where

(a) r(x) = 0 always (b) deg r(x) < deg g(x) always

(c) either r(x) = 0 or deg r(x) < deg g(x) (d) r(x) = g(x)

Q 36. Which of the following is a true statement?

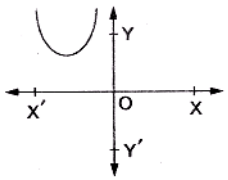
(a) $x^2 + 5x - 3$ is a linear polynomial. (b) $x^2 + 4x - 1$ is a binomial.

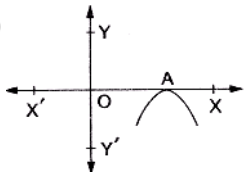
(c) x + 1 is a monomial. (d) $5x^3$ is a monomial.

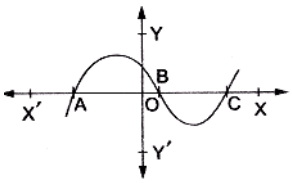
Q 37. If α, β are the zeros of the polynomial $ax^2 + bx + c$, then $(\alpha^2 + \beta^2)$ = ?

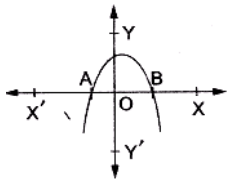
(a) $\frac{a^2 - 2bc}{b^2}$ (b) $\frac{b^2 - 2ac}{a^2}$ (c) $\frac{a^2 + 2bc}{b^2}$ (d) $\frac{b^2 + 2ac}{a^2}$

Q 38. Which of the following is not a graph of a quadratic polynomial?

(a) 

(b) 

(c) 

(d) 

MCQ Based on Synthesis (2 marks)

Q 39. Read the statements given below:

I. If α, β are the zeros of the polynomial $x^2 - p(x + l) - c$, then $(\alpha + 1)(\beta + l) = l - c$.

II. If α, β are the zeros of the polynomial $x^2 + px + q$, then the polynomial having $\frac{1}{\alpha}, \frac{1}{\beta}$ as zeros is $qx^2 + px + 1$.

III. When*$^3 + 3x^2 - 5x + 4$ is divided by (x + 1), then the remainder is 9. Which of the above statements is false?

(a) I only (b) II only (c) III only (d) I and HI both

Q 40. Read the statements given below:

I. If the polynomial $p(x) = 2x^3 - kx^2 + 5x + 2$ is exactly divisible by (x + 2), then k = -6.

II. If the polynomial $q(x) = x^3 - 7x + k$ when divided by (x -1) leaves the remainder 2, then k = 6.

III. If two zeros of the polynomial $f(x) - x^3 - 5x^2 - 16x + 80$ are equal in magnitude and opposite in sign, then the third zero is 5.

Which of the above statements is not true?

(a) I only (b) II only (c) III only (d) I as well as II

MCQ Assertion-and-Reason Type (2 marks)

Each question consists of two statements, namely, Assertion (A) and Reason (R). For selecting the correct answer, use the following code:

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not a correct explanation of Assertion (A).

(c) Assertion (A) is true and Reason (R) is false.

(d) Assertion (A) is false and Reason (R) is true.

Q 41.

Assertion (A)	Reason (R)
If one zero of the polynomial $p(x) = k^2 + 4)x^2 + 9x + 4k$ is the reciprocal of the zero, then k = 2.	If $(x - \alpha)$ is a factor of the polynomial p(x), then α is a zero of p(x).

The correct answer is: (a)/(b)/(c)/(d).

Assertion (A)	Reason (R)
The polynomial $p(x) = x^3 + x$ has one real zero.	A polynomial of nth degree has at most n zeros.

The correct answer is: (a)/(b)/(c)/(d).

Assertion (A)	Reason (R)
If on dividing the polynomial $p(x) = x^2 - 3ax + 3a - 7$ by (x +1), we get 6 as remainder, then a = 3.	When a polynomial p(x) is divided by $(x - \alpha)$, then the remainder is $p(\alpha)$.

The correct answer is: (a)/(b)/(c)/(d).

Assertion (A)	Reason (R)
A monic quadratic polynomial having 4 and -2 as zeros is $x^2 - 2x - 8$.	The monic quadratic polynomial having a and p as zeros is given by $p(x) = x^2 - (\alpha + \beta)x + \alpha\beta$.

HINT A monic quadratic polynomial is one in which the coefficient of x^2 is 1.

The correct answer is: (a)/(b)/(c)/(d).

True/False Type (2 marks)

Q 45. If the zeros of a quadratic polynomial $ax^2 + bx + c$ are both negative then a,b,c will have the same sign.

(a) True (b) False

Matching of columns (2 marks)

Q 46. Match the following columns:

Column I	Column II
(a) If α and β be the zeros of the polynomial x^2 -5x + k such that (α - β) = 1, then k =.....	(p) 10
(b) If one zero of $4x^2$ +17x + p is the reciprocal of the other, then P=.....	(q) -3
(c) If the zeros of x^3 -$6x^2$ + 3x + m are (a-d),a and (a + d), then m =.....	(r) 4
(d) If the zeros of x^3 +$9x^2$ +23x+15 are (a - d),a and (a + d), then a =.....	(s) 6

The correct answer is:

(a)-..... (b)-..... (c)-..... (d)-.....

Q 47. Match the following columns:

Column I	Column II
(a) The polynomial whose zeros are 2 and –3 is …..	(p) $x^2 - 4x + 1$
(b) The polynomial whose zeros are $(2 + \sqrt{3})$ and $(2 - \sqrt{3})$ is…….	(q) $x^2 - 2\sqrt{3}x + 2$
(c) The polynomial whose zeros are $\frac{3}{2}$ and $-\frac{1}{2}$ is…..	(r) $x^2 + x - 6$
(d) The polynomial whose zeros are ($\sqrt{3}$ + 1) and ($\sqrt{3}$ – 1) is…….	(s) $4x^2 - 4x - 3$

The correct answers is:

(a) –….., (b) –…., (c)–……., (d)– …..

Answers

1.(d) 2(d) 3.(c) 4.(b) 5.(c) 6.(b) 7.(a) 8.(c) 9.(d) 10.(c)
11.(d) 12.(b) 13.(b) 14.(c) 15.(d) 16.(b) 17.(c) 18.(b) 19.(a) 20.(b)
21.(a) 22.(d) 23.(a) 24.(d) 25.(b) 26.(a) 27.(a) 28.(c) 29.(a) 30.(b)
31.(c) 32.(d) 33.(c) 34.(d) 35.(c) 36.(d) 37.(b) 38.(c) 39.(c) 40.(b)
41.(a)–(s), (b)–(r), (c)–(p), (d)–(q) 47. (a)–(r), (b)–(p), (c)–(s), (d)–(q)