EXERCISE-1 (FOR SCHOOL/BOARD EXAMS)

OBJECTIVE TYPE QUESTIONS

CHOOSE THE CORRECT ONE

1. Quadratic polynomial having zeros 1 and –2 is –

(A) $x^2 - x + 2$ (B) $x^2 - x - 2$

(C) $x^2 + x - 2$ (D) None of these

2. If (x–1) is a factor of $k^2x^3 - 4kx + 4k - 1$, then the value of k is –

(A) 1 (B) – 1

(C) 2 (D) –2

3. For what value of a is the polynomial $2x^4 - ax^3 + 4x^2 + 2x + 1$ divisible by $1 - 2x$?

(A) a = 25 (B) a = 24 (C) a = 23 (D) a = 22

4. If one of the factors of $x^2 + x - 20$ is $(x + 5)$, then other factor is –

(A) $(x - 4)$ (B) $(x - 5)$ (C) $(x - 6)$ (D) $(x - 7)$

5. If α,β be the zeros of the quadratic polynomial $2x^2 + 5x + 1$, then value of $\alpha + \beta + \alpha\beta$ =

(A) –2 (B) –1 (C) 1 (D) None of these

6. If α,β be the zeros of the quadratic polynomial $2 - 3x - x^2$, then $\alpha + \beta$ =

(A) 2 (B) 3 (C) 1 (D) None of these

7. Quadratic poolynomial having sum of it's zeros 5 and product of it's zeros – 14 is –

(A) $x^2 - 5x - 14$ (B) $x^2 - 10x - 14$

(C) $x^2 - 5x + 14$ (D) None of these

8. If x = 2 and x = 3 are zeros of the quadratic polynomial $x^2 + ax + b$, the values of a and b respectively are :

(A) 5, 6 (B) – 5, – 6 (C) –5, 6 (D) 5, 6

9. If 3 is a zero of the polynomial $f(x) = x^4 - x^3 - 8x^2 + kx + 12$, then the value of k is –

(A) – 2 (B) 2 (C) – 3 (D) $\frac{3}{2}$

10. The sum and product of zeros of the quadratic polynomial are – 5 and 3 respectively the quadratic polynomial is equal to –

(A) $x^2 + 2x + 3$ (B) $x^2 - 5x + 3$ (C) $x^2 + 5x + 3$ (D) $x^2 + 3x - 5$

11. On dividing $x^3 - 3x^2 + x + 2$ by polynomial g(x), the quotient and remainder were $x - 2$ and $4 - 2x$ respectively then g(x) :

(A) $x^2 + x + 1$ (B) $x^2 + x - 1$

(C) $x^2 - x - 1$ (D) $x^2 - x + 1$

12. If the polynomial $3x^2 - x^3 - 3x + 5$ is divided by another polynomial $x - 1 - x^2$, the remainder comes out to be 3, then quotient polynomial is –

(A) $2 - x$ (B) $2x - 1$ (C) $3x + 4$ (D) $x - 2$

13. If sum of zeros = $\sqrt{2}$, product of its zeros = $\frac{1}{3}$. The quadratic polynomial is –

(A) $3x^2 - 3\sqrt{2}x + 1$ (B) $\sqrt{2}x^2 + 3x + 1$

(C) $3x^2 - 2\sqrt{3}x + 1$ (D) $\sqrt{2}x^2 + x + 3$

14. If $-\frac{1}{3}$ is the zero of the cubic polynomial $f(x) = 3x^3 - 5x^2 - 11x - 3$ the other zeros are :

(A) $-3, -1$ (B) $1, 3$ (C) $3, -1$ (D) $-3, 1$

15. If α and β are the zeros of the polynomial $f(x) = 6x^2 - 3 - 7x$ then $(\alpha + 1)(\beta + 1)$ is equal to –

(A) $\frac{5}{2}$ (B) $\frac{5}{3}$ (C) $\frac{2}{5}$ (D) $\frac{3}{5}$

16. Let $p(x) = ax^2 + bx + c$ be a quadratic polynomial. It can have at most –

(A) One zero (B) Two zeros

(C) Three zeros (D) None of these

17. The graph of the quadratic polynomial $ax^2 + bx + c$, $a \neq 0$ is always –

(A) Straight line (B) Curve

(C) Parabola (D) None of these

18. If 2 and $-\frac{1}{2}$ as the sum and product of its zeros respectively then the quadratic polynomial f(x) is –

(A) $x^2 - 2x - 4$ (B) $4x^2 - 2x + 1$

(C) $2x^2 + 4x - 1$ (D) $2x^2 - 4x - 1$

19. If α and β are the zeros of the polynomial $f(x) = 16x^2 + 4x - 5$ then $\frac{1}{\alpha} + \frac{1}{\beta}$ is equal to –

(A) $\frac{2}{5}$ (B) $\frac{5}{2}$

(C) $\frac{3}{5}$ (D) $\frac{4}{5}$

20. If α and β are the zeros of the polynomial $f(x) = 15x^2 - 5x + 6$ then $\left(1 + \frac{1}{\alpha}\right)\left(1 + \frac{1}{\beta}\right)$ is equal to –

(A) $\frac{13}{3}$ (B) $\frac{13}{2}$ (C) $\frac{16}{3}$ (D) $\frac{15}{2}$

OBJECTIVE — ANSWER KEY — EXERCISE -1

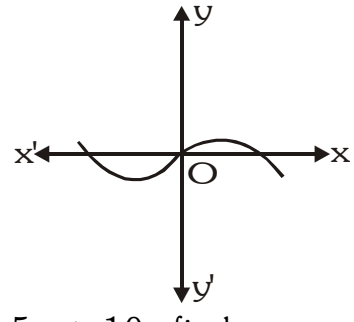
Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	A	A	A	A	D	A	C	B	C	D	D	A	C	B
Que.	16	17	18	19	20										
Ans.	B	C	D	D	A										

EXERCISE-3 (FOR SCHOOL/BOARD EXAMS)

PREVIOUS YEARS BOARD (CBSE) QUESTIONS

QUESTIONS CARRYING 1 MARK

1. Write the zeros of the polynomial $x^2 + 2x + 1$. [Delhi-2008]
2. Write the zeros of the polynomial, $x^2 - x - 6$. [Delhi-2008]
3. Write a quadratic polynomial, the sum and product of whose zeros are 3 and – 2 respectively. [Delhi-2008]
4. Write the number of zeros of the polynomial y = f(x) whose graph is given in figure. [AI-2008]



5. If (x + a) is a factor of $2x^2 + 2ax + 5x + 10$, find a [Foreign-2008]
6. For what value of k, (–4) is a zero of the polynomial $x^2 - x - (2k + 2)$? [Delhi-2009]
7. For what value of p, (–4) is a zero of the polynomial $x^2 - 2x - (7p + 3)$? [Delhi-2009]
8. If 1 is a zero of the polynomial $p(x) = ax^2 - 3(a - 1)x - 1$, then find the value of a. [AI-2009]
9. Write the polynomial, the product and sum of whose zeros $-\frac{9}{2}$ and $-\frac{3}{2}$ respectively [Foreign-2009]
10. Write the polynomial, the product and sum of whose zeros are $-\frac{13}{5}$ and $-\frac{3}{5}$ respectively. [Foreign-2009]

QUESTIONS CARRYING 2 MARKS

11. Find the zeros of the quadratic polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeros and the co-efficients of the polynomial. [Delhi-2008]
12. Find the zeros of the quadratic polynomial $5x^2 - 4 - 8x$ and verify the relationship between the zeros and the coefficients of the polynomial. [Delhi-2008]
13. Find the quadratic polynomial sum of whose zeros is 8 and their product is 12. Hence, find the zeros of the polynomial. [AI-2008]
14. If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other. Find the vlaue of 'a' [AI-2008]
15. If the product of zeros of the polynomial $ax^2 - 6x - 6$ is 4, find the value of 'a' [AI-2008]
16. Find all the zeros of the polynomial $x^4 + x^3 - 34x^2 - 4x + 120$, if two of it's zeros are 2 and – 2. [Foreign-2008]
17. Find all the zeros of the polynomial $2x^4 + 7x^3 - 19x^2 - 14x + 30$, if two of it's zeros are $\sqrt{2}$ and $-\sqrt{2}$ [Foreign-2008]
18. If the polynomial $6x^4 + 8x^3 + 17x^2 + 21x + 7$ is divided by another polynomial $3x^2 + 4x + 1$, the remainder comes out to be (ax + b), find a and b. [Delhi-2009]
19. If the polynomial $x^4 + 2x^3 + 8x^2 + 12x + 18$ is divided by another polynomial $x^2 + 5$, the remainder comes out to be px + q. Find the values of p and q. [Delhi-2009]
20. Find all the zeros of the polynomial $x^3 + 3x^2 - 2x - 6$, if two of it's zeros are $-\sqrt{2}$ and $\sqrt{2}$.[AI-2009]
21. Find all the zeros of the polynomial $2x^3 + x^2 - 6x - 3$, if two of it's zeros are $-\sqrt{3}$ and $\sqrt{3}$. [AI-2009]
22. If the polynomial $6x^4 + 8x^3 - 5x^2 + ax + b$ is exactly divisible by polynomial $2x^2 - 5$, then find the value of a and b. [Foreign-2009]

POLYNOMIALS **ANSWER KEY** EXERCISE-3 (X)-CBSE

1. x = – 1 2. 3, – 2 3. $x^2 - 3x - 2$ 4. 3 5. 2 6. 9 7. 3 8. a = 1 9. $2x^2 + 3x - 9$ 10. $5x^2 + 3x - 13$
11. $\left[\frac{-1}{3}, \frac{3}{2}\right]$ 12. $\left[\frac{-2}{5}, 2\right]$ 13. $x^2 - 8x + 12$; (6, 2) 14. 3 15. $\frac{-3}{2}$ 16. 2, – 2, – 6 and 5 17. $\sqrt{2}, -\sqrt{2}, -5$ and $\frac{3}{2}$
18. a = 1, b = 2 19. p = 2, q = 3 20. $-\sqrt{2}, \sqrt{2}$ and – 3 21. $-\sqrt{3}, \sqrt{3}$ and $-\frac{1}{2}$ 22. a = – 20, b = – 25