

Chapter 2

ASSIGNMENT

OBJECTIVE 2.1

1. The product of $(x + a)(x + b)$ is :
(A) $x^2 + (a + b)x + ab$ (B) $x^2 - (a - b)x + ab$ (C) $a^2 + (a - b)x + ab$ (D) $x^2 + (a - b)x - ab$.
2. The value of 150×98 is :
(A) 10047 (B) 14800 (C) 14700 (D) 10470
3. The expansion of $(x + y - z)^2$ is :
(A) $x^2 + y^2 + z^2 + 2xy + 2yz + 2zx$ (B) $x^2 + y^2 - z^2 - 2xy + yz + 2zx$
(C) $x^2 + y^2 + z^2 + 2xy - 2yz - 2zx$ (D) $x^2 + y^2 - z^2 + 2zy - 2yz - 2zx$
4. The value of $(x + 2y + 2z)^2 + (x - 2y - 2z)^2$ is:
(A) $2x^2 + 8y^2 + 8z^2$ (B) $2x^2 + 8y^2 + 8z^2 + 8xyz$
(C) $2x^2 + 8y^2 + 8z^2 - 8yz$ (D) $2x^2 + 8y^2 + 8z^2 + 16yz$
5. The value of $25x^2 + 16y^2 + 40xy$ at $x = 1$ and $y = -1$ is :
(A) 81 (B) -49 (C) 1 (D) None of these
6. On simplifying $(a + b)^3 + (a - b)^3 + 6a(a^2 - b^2)$ we get :
(A) $8a^2$ (B) $8a^2b$ (C) $8a^3b$ (D) $8a^3$
7. Find the value of $\frac{a^3 + b^3 + c^3 - 3abc}{ab + bc + ca - a^2 - b^2 - c^2}$, when $a = -5$, $b = -6$, $c = 10$.
(A) 1 (B) -1 (C) 2 (D) -2
8. If $(x + y + z) = 1$, $xy + yz + zx = -1$, $xyz = -1$ then value of $x^3 + y^3 + z^3$ is :
(A) -1 (B) 1 (C) 2 (D) -2
9. In method of factorisation of an algebraic expression. Which of the following statement is false ?
(A) Taking out a common factor from two or more terms.
(B) Taking out a common factor from a group of terms.
(C) By using remainder theorem.
(D) By using standard identities.
10. Factors of $(a + b)^3 - (a - b)^3$ is :

- (A) $2ab(3a^2 + b^2)$ (B) $ab(3a^2 + b^2)$ (C) $2b(3a^2 + b^2)$ (D) $3a^2 + b^2$
11. Degree of zero polynomial is :
 (A) 0 (B) 1 (C) Both 0 & 1 (D) Not defined

SUBJECTIVE EXERCISE 2.2

- If $a^4 + \frac{1}{a^4} = 119$, then find the value of $-\frac{1}{a^3}$.
- If $x = 152$, $y = -91$ find the value of $9x^2 + 30xy + 25y^2$.
- Evaluate :
 (i) $(5x + 4y)^2$ (ii) $(4x - 5y)^2$ (iii) $\left(2x - \frac{1}{x}\right)^2$
- If $x + y = 3$ and $xy = -18$, find the value of $x^3 + y^3$.
- If $x^2 + \frac{1}{x^2} = 51$ find the value of $x^3 - \frac{1}{x^3}$.
- Evaluate :
 (i) $25^3 - 75^3 + 50^3$ (ii) $\left(\frac{1}{2}\right)^3 + \left(\frac{1}{3}\right)^3 - \left(\frac{5}{6}\right)^3$ (iii) $(0.2)^3 - (0.3)^3 + (0.1)^3$
- Find the product of :
 (i) $(x + 4)(x + 7)$ (ii) $\left(x + \frac{1}{5}\right)(x + 5)$ (iii) $(P^2 + 16)\left(P^2 - \frac{1}{4}\right)$
- Evaluate :
 (i) 102×106 (ii) 994×1006 (iii) 34×36
- Factorise : $4x^4 + (7a)^4$.
- Factorise : $x^{12} = 1$.
- Evaluate $\frac{(a-b)^2}{(b-c)(c-a)} + \frac{(b-c)^2}{(a-b)(c-a)} + \frac{(c-a)^2}{(a-b)(b-c)}$.
- Write the following polynomials in standard forms :
 (i) $x^6 - 3a^4 + \sqrt{2}x + 5x^2 + 7x^5 + 4$
 (ii) $m^7 + 8m^5 + 4m^6 + 6m - 3m^2 - 11$
- Factorise : $(x + 1)(x + 2)(x + 3)(x + 4) - 3$.

14. Factorise : $64a^3 - 27b^3 - 144a^2b + 108ab^2$.
15. Factorise : $x^4 + 2x^3y - 2xy^3 - y^4$.

OBJECTIVE - 2.3

1. Factors of $(42 - x - x^2)$ are:
 (A) $(x - 7)(x - 6)$ (B) $(x + 7)(x - 6)$ (C) $(x + 7)(6 - x)$ (D) $(x + 7)(x + 6)$
2. Factors of $\left(x^2 + \frac{x}{6} - \frac{1}{6}\right)$ are :
 (A) $\frac{1}{6}(2x + 1)(3x + 1)$ (B) $\frac{1}{6}(2x + 1)(3x - 1)$ (C) $\frac{1}{6}(2x - 1)(3x - 1)$ (D) $\frac{1}{6}(2x - 1)(3x + 1)$
3. Factors of polynomial $x^3 - 3x^2 - 10x + 2x$ are :
 (A) $(x - 2)(x + 3)(x - 4)$ (B) $(x + 2)(x + 3)(x + 4)$
 (C) $(x + 2)(x - 3)(x - 4)$ (D) $(x - 2)(x - 3)(x - 4)$
4. If $(x + a)$ is a factor of $x^2 + px + q$ and $x^2 + mx + n$ then the value of a is :
 (A) $\frac{m - p}{n - q}$ (B) $\frac{n - q}{m - p}$ (C) $\frac{n + q}{m + p}$ (D) $\frac{m + p}{n + q}$

SUBJECTIVE - 2.4

1. Factorise : $8x^3 + 16 - 9$.
2. Factorise : $x^4 + x^3 - 7x^2 - x + 6$.
3. Factorise : $9z^3 - 27z^2 - 100z + 300$.
4. Determine whether $x - 3$ is a factor of polynomial $p(x) = x^3 - 3x^2 + 4x - 12$.
5. Using factor theorem, prove that $p(x)$ is divisible by $g(x)$ if $P(x) = 4a^4 + 5x^3 - 12x^2 - 11x + 5$, $g(x) = 4x + 5$.
6. Determine if $(x + 1)$ is a factor of $x^3 - x^2 - (2 - \sqrt{2})x + \sqrt{2}$.
7. $x^3 - 23x^2 + 142x - 120$.
8. $x^3 + 13x^2 + 32x + 20$.
9. $2x^3 + y^2 - 2y - 1$.
10. $4z^3 + 20z^2 + 33z + 18$.
11. $x^4 + 5x^2 + 4$.
12. $x^3 - 10x^2 - 53x - 42$.