



Class-Seven
Subject-Mathematics
Vacation Home Work (Both Campus)
Chapter 5(E.X-5.1,5.2,5.3,5.4)

1. If $n + \frac{1}{n} = 6$ then
 - a. Prove that $n^2 - 6n + 1 = 0$.
 - b. Prove that $n^4 + \frac{1}{n^4} = 1154$.
 - c. Find the value of $(n^2 - \frac{1}{n^2})^2$.

2. $x - \frac{1}{x}$, $x+2y-z$ are two algebraic expression
 - a. If the value of 1st term = 3, then show that $x^2 + \frac{1}{x^2} = 11$.
 - b. If the value of 1st term = 3, then find the value of $(x^2 - \frac{1}{x^2})^2$.
 - c. Find out the square of 2nd expression using formula.

3. $5a+b$, $5a-b$ are two algebraic expression
 - a. Find out the square of 1st expression.
 - b. Find the product of 1st and 2nd expression.
 - c. **Simplify** $25(\text{1st term})^2 + 10 \times \text{1st term} \times \text{2nd term} + (\text{2nd term})^2$.

4. $x-y-z$, $x+y+z$ are two algebraic expression
 - a. Find out the square of 2nd expression.
 - b. Find the product of 1st and 2nd expression.
 - c. **Simplify** $(\text{1st term})^2 + 4 \times \text{1st term} \times \text{2nd term} + 4(\text{2nd term})^2$.

5. Observe the following algebraic expression
 - ii) $x^2 + 5x + 6$ iii) $4 + 8x^2 + 9a^4$ iv) $bx^4 - 256b$
 - a. Using the formula, show that the product of $(x+3)$ and $(x+2)$ is equal to the expression (i).

- b. Factorize the expression (ii).
- c. Show that $(x-4)$ is a factor of (iii).

6. $3a^2 + 9$, $a^4 - 9$ and $a^4 + 6a^2 + 9$ are three algebraic expression.

- a) Factorize 3rd expression.
- b) Find the H.C.F of 2nd and 3rd expressions.
- c) Find the L.C.M of the three expressions.

7. $x^4 - 81$, $x^2 + x - 6$, $2x^2 + 5x - 3$ Are three expressions.

- a) Resolve the 3rd expression into factors.
- b) Find the L.C.M of the three expressions.
- c) Find the L.C.M of the three expressions.

8. If $x+y = 4$, and $xy = 3$, then

- a) Find the sq of $(x - y)$.
- b) .show that $(x^2 - y^2) = 8$
- c.) Find the value of $(x - y)^2 + (x^2 - y^2)$

9. $x^2 - 5x + 1 = 0$ an algebraic equation.

- a). Find the value of $x + \frac{1}{x}$?
- b) Prove that $x^2 + \frac{1}{x^2} = 23$
- c). Prove that $(x^2 - \frac{1}{x^2})^2 = 525$

Compiled by---

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