



TAGORE INTERNATIONAL SCHOOL
EAST OF KAILASH, NEW DELHI

Class: IX Sec: D
Session: 2026-27

Subject: Mathematics
Topic: Exploring Algebraic Identities

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Assignment No. 3

1. Expand: $(8x^2 + 3y^4)^2$
2. Divide: $6x^2 + 17x + 12$ by $2x + 3$.
3. The expansion of $(a - b)^3$ is:
A. $a^3 + 3a^2b + 3ab^2 + b^3$
B. $a^3 - 3a^2b + 3ab^2 - b^3$
C. $a^3 + 3a^2b - 3ab^2 - b^3$
D. $a^3 - a^2b + ab^2 - b^3$
4. Find the value of: $(103)^2$ using a suitable algebraic identity.
5. The quotient obtained when $2x^2 + 7x + 6$ is divided by $2x + 3$ is:
A. $x + 2$
B. $x + 3$
C. $2x + 2$
D. $x - 2$
6. The factorisation of $36x^2 - 60xy + 25y^2$ is: _____
A. $(6x - 5y)^2$
B. $(6x + 5y)^2$
C. $(3x - 5y)^2$
D. $(6x - 25y)^2$
7. Divide: $x^4 - 5x^3 + 7x^2 - 3x + 6$ by $x^2 - 2x + 1$.
8. Factorise: $6x^2 + 11x + 3$
9. Factorise: $64a^2 - 81b^2$
10. Expand using identities: $(2x + y)^3$
11. Factorise: $8p^3 - 36p^2q + 54pq^2 - 27q^3$
12. If $x^2 + \frac{1}{x^2} = 18$ find the value of $x - \frac{1}{x}$
13. Three numbers have sum 8, product 6, and the sum of their squares is 26. Find the value of:

$$x^3 + y^3 + z^3$$

14. Case Study Question

A school gardener wants to prepare a rectangular flower bed using tiles. The total area of the flower bed is represented by:

$$x^2 + 12x + 35 \text{ square units.}$$

Answer the following:

- Factorise the given expression completely.
- Hence, determine the possible length and breadth of the flower bed.
- If $x = 5$, find the actual dimensions of the flower bed.
- Find the perimeter of the flower bed for $x = 5$.

Answer Key

Q.No.	Answer
1	$64x^4 + 48x^2y^4 + 9y^8$
2	Quotient = $3x + 4$, Remainder = 0
3	B.
4	10609
5	$(5x + 3y)^2$
6	B.
7	Quotient = $x^2 - 3x$, Remainder = $-2x + 6$
8	$(3x + 1)(2x + 3)$
9	$(8a - 9b)(8a + 9b)$
10	$8x^3 + 12x^2y + 6xy^2 + y^3$
11	$(2p - 3q)^3$
12	4
13	74
14(a)	$(x + 5)(x + 7)$
14(b)	Dimensions: $x + 5$, $x + 7$
14(c)	10units and 12units
14(d)	44units

$$\begin{array}{r} 3x \\ 2x+3 \overline{) 6x^2+17x+12} \\ \underline{6x^2+9x} \\ 8x+12 \end{array}$$

$$\underline{6x^2+17x+12}$$