

CHAPTER 06 WE DISTRIBUTE, YET THINGS MULTIPLY (Ganita Prakashan)

SUBJECT: MATHEMATICS

MAX. MARKS : 40

CLASS : VIII

DURATION : 1½ hr

General Instructions:

- (i). All questions are compulsory.
 - (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
 - (iii). **Section A** comprises of 10 MCQs of 1 mark each. **Section B** comprises of 4 questions of 2 marks each. **Section C** comprises of 3 questions of 3 marks each. **Section D** comprises of 1 question of 5 marks each and **Section E** comprises of 2 Case Study Based Questions of 4 marks each.
 - (iv). There is no overall choice.
 - (v). Use of Calculators is not permitted
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SECTION – A

Questions 1 to 10 carry 1 mark each.

- 1. If the product of two numbers is ab , then the decrease in the product when the second number is decreased by 6 is
(a) $6a$ (b) $ab-6a$ (c) $ab-6b$ (d) $6b$
- 2. Using algebraic identity, the value of 96×104 is
(a) 9984 (b) 9964 (c) 9944 (d) 9924
- 3. Which identity is best suited to calculate 163^2 mentally?
(a) $(a-b)^2$ (b) $(a+b)^2$ (c) $(a+b)(a-b)$ (d) $a^2 + b^2$
- 4. When one number is increased by 7 and the other decreased by 8, the change in product is
(a) $7b-8a$ (b) $7b-8a-56$ (c) $ab-56$ (d) $8a-7b$
- 5. The square of an odd number always leaves remainder ____ when divided by 8.
(a) 3 (b) 5 (c) 7 (d) 1
- 6. Which expansion is correct?
(a) $(15x - 6)^2 = 225x^2 - 36$ (b) $(15x - 6)^2 = 225x^2 - 180x + 36$
(c) $(15x - 6)^2 = 30x^2 - 36$ (d) $(15x - 6)^2 = 225x^2 - 90x + 6$
- 7. Using identities, the value of 86×114 is
(a) 9804 (b) 9844 (c) 9884 (d) 9764
- 8. The algebraic expression for decrease in area when the side of a square changes from m to $m-10$ is
(a) $20m-100$ (b) m^2-100 (c) $20m+100$ (d) $10m-100$

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
 - (b) Both A and R are true but R is not the correct explanation of A.
 - (c) A is true but R is false.
 - (d) A is false but R is true.
- 9. Assertion (A):** The square of any multiple of 12 is divisible by 144.
Reason (R): Any multiple of 12 can be written as $12n$.
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10. Assertion: $(a + b)^2 - (a - b)^2$ is always divisible by 4.

Reason: The expression simplifies to $4ab$.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. Using identity:

(i) Write the identity for $(a-b)^2$.

(ii) Expand $(x-14)^2$.

12. Using identity:

(i) Write the identity for $(a + b)(a - b)$.

(ii) Find 92×108 .

13. Change in product:

(i) Find the product of 31 and 44.

(ii) Find the increase when both are increased by 1.

14. Multiple of 12:

(i) Write a multiple of 12 algebraically.

(ii) Write its square.

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Using identities: (i) Write the identity for $(a+b)^2$.

(ii) Expand $(z+14)^2$.

(iii) Find the value of 64^2 .

16. Using identity $(a + b)(a - b)$:

(i) Write the identity.

(ii) Express 86×74 .

(iii) Find the value.

17. Divisibility reasoning:

(i) Write a multiple of 12 algebraically.

(ii) Find its square.

(iii) State the conclusion.

SECTION – D

Questions 18 carry 5 marks each.

18. Find the value of 165^2 using algebraic identity.

(i) Write the identity used.

(ii) Express 165 suitably.

(iii) Expand using identity.

(iv) Simplify to obtain the value.

SECTION – E (Case Study Based Question)

Question 19 to 20 carry 4 mark

19. Case Study-1: Square Courtyard in Heritage School

A heritage school plans to renovate its old square courtyard used for morning assemblies and cultural activities. Originally, each side of the courtyard measures 54 m. To allow better movement of students

and installation of safety railings, the school management decides to increase the length of each side by 11 m. While estimating the additional area required for tiling and budgeting, a teacher suggests using algebraic identities instead of lengthy multiplication. This helps students understand how mathematics simplifies real-life planning tasks and promotes efficient problem-solving during large construction projects.



- (i) Write the identity used
- (ii) Find original area
- (iii) Find new area
- (iv) Find increase in area

20. Case Study-2: Mental Maths in Scholarship Test

In a state-level scholarship test, students are expected to perform calculations quickly without calculators. One question asks candidates to evaluate 107×93 . A confident student rewrites the numbers around 100 and applies the difference of squares identity to reach the answer rapidly. This strategy saves valuable time and reduces chances of error, giving the student an advantage over others. The scenario highlights the importance of mastering algebraic identities for speed, accuracy, and confidence in competitive examinations.



- (i) Identify the identity used
- (ii) Write the expression
- (iii) Find the value
- (iv) Verify the result

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