



GRADE -8

Work sheet - MATHEMATICS

2024-'25

CHAPTER -13

IDENTITIES AND FACTORISATION.

Name :

Date:.....

M C Q- I

1. Subtract the algebraic expressions: $6a - 3b$ and $4a + 2b$.

- A. $2a - 5b$
- B. $2a + 5b$
- C. $10a - 5b$
- D. $10a + 5b$

2. Evaluate the product using the distributive property: $(5x + 3y)(4x - 2y)$.

- A. $20x^2 - 6xy$
- B. $20x^2 + 18xy$
- C. $20x^2 - 10xy + 6y^2$
- D. $20x^2 + 22xy - 6y^2$

3. Multiply the trinomials: $(x + 2y + 3z)(x - 2y - 3z)$.

- A. $x^2 - 4y^2 - 9z^2$
- B. $x^2 + 4y^2 + 9z^2$
- C. $x^2 - 4y^2 + 9z^2$
- D. $x^2 + 4y^2 - 9z^2$

4. Evaluate the product: $(2x + y)(x^2 - xy + y^2)$.

- A. $2x^3 + 3x^2y - 2xy^2 + y^3$
- B. $2x^3 - x^2y + xy^2 + y^3$
- C. $2x^3 + x^2y - 3xy^2 + y^3$
- D. $2x^3 - x^2y + 2xy^2 + y^3$

5. An algebraic expression which has 2 terms is called

A) monomial

B) binomial

C) trinomial

linear polynomial

6) . An algebraic expression whose degree is 3 is called apolynomial.

- A) linear B) quadratic C) cubic D) bi-quadratic

FILL IN THE BLANKS:

i)A quantity that has a fixed numerical value is called a _____

ii)In algebra, _____ are usually used to represent variables.

iii)An algebraic expression is a combination of constants and literals connected by signs of the _____

iv)Terms in an expression which have the same literal factors are called _____ terms.

v)Terms in an expression which do not have the same literal factors are called _____ terms.

vi)An algebraic expression in which the powers of the variables are whole numbers is called a

vii)

Expression	Solution
(i) $(3y^3 - 4y + 8) + (2y^2 - 4y + 2)$	(a) $-3x^3y + 2xy^3 + 6y^2$
(ii) $(5x^3 - 2x^2 + x - 14) - (-3x^3 - 4x - 7)$	(b) $3y^3 + 2y^2 - 8y + 10$
(iii) $(2y^3 - 4y^2 + 11y + 2) \times 3y$	(c) $8x^2 - 4x - 6$
(iv) $(3x^3 - 2xy^2 - 6y) \times (-y)$	(d) $8x^3 - 2x^2 + 5x - 7$
(v) $(24x^3 - 12x^2 - 18x) \div 3x$	(e) $6y^4 - 12y^3 + 33y^2 + 6y$

ANSWER THE FOLLOWING QUESTIONS:

- 1) Add: $x^3 + 3x^2y + y^2$; $2x^2y + 2xy^2$; $x^2 + 3x^3 + y^2$ and $-2y^3 - 3x^2y + y^2$
- 2) Subtract: $3x^2 + 4x^2y - 5xy^2 - y^2$ from $-5y^2 + 7x^2 + 4x^2y - 7xy^2$
- 3) Multiply: $(x^2 - 5x + 3)(5x^2 + 3x - 4)$
- 4) Divide: $(14x^2 - 29xy - 18y^2) \div (2x - 5y)$
- 5) Add: $15x^2y - 20xy^2 + 4xy + 10x^2y^2 + 6$ and $25x^2y^2 + 8x^2y - 10xy^2 + 5$
- 6) Add: $5p^3 - q^2$ and $1 - p^2$

- 7) Subtract: $-12pq + 2p^2q - 6pq^2$ from $10p^2q + 5pq^2 - 2pq + 14$
 8) Subtract: $5 - 2x$ from $3x^3 + 6x^2$
 9) Multiply: $x^2 - y^2$ by $x + y$
 10) Divide: $4x^4 - 2x^2 + x$ by $2x^2 - x$

1. If $A = 2x^3y^2 - 5xy^2 + x^2y$ and $B = x^2y - 3x^3y^2 + 4xy^2$, find $A + B$.

2. Solve for x : $4x - 3(2x - 1) = 5x + 6$

Long Answer Type Questions (4 marks each)

3. Simplify the expression: $2(x - y)^2 + 3(x^2 - y^2) - (x^2 - 2xy + y^2)$ and find its value when $x = -1$ and $y = 2$.

4. Karan received 200 coins consisting of x nickels and $(200 - x)$ dimes. If the total amount of money he received was Rs 18, write an algebraic expression to represent this situation and find the number of nickels.

5 In a small town, there is a group of students from 'Creative Minds' school. The Mathematics teacher, Mr. Sharma, has given students a challenge to find the total area of three unique gardens A, B, and C, and to compare these three gardens to determine which one has the largest area. To complete this challenge, the students need to apply their knowledge of algebraic expressions and their skills of addition, subtraction, multiplication, and simplification.

The area of each garden is represented as follows:

Garden A: $(x^2 + 3x)$ sq. meters

Garden B: $(2x^2 - 7x)$ sq. meters

Garden C: $(\frac{1}{2}x^2 + 5x + 8)$ sq. Meters

Question 1: Find the sum of algebraic expressions representing the area of Garden A and Garden B.

Question 2: Simplify the algebraic expression representing the area of Garden C.

Question 3: Find the product of the area of Garden A and Garden B.

Case Study Based Question (4 marks)

1 A factory is packaging instant noodles in two types of boxes. Box A contains 3 packages of chicken-flavored noodles, 2 packages of beef-flavored noodles, and 1 package of vegetable-flavored noodles. Box B contains 5 packages of chicken-flavored noodles and 1 package of beef-flavored noodles. If the total number of packages of chicken-flavored noodles is C , packages of beef-flavored noodles is B , and packages of vegetable-flavored noodles is V , write algebraic expressions for the total number of packages in box A and box B. Then, find the total number of packages for each flavor if the factory produced 100 box A's and 150 box B's.