



Final Term vacation Work

Class-6

Subject-Mathematics

Chapter- 4 (Algebraic Expressions)

Day -1

Date 29/06/2020

Addition of Algebraic Expressions

In addition of algebraic expressions while adding algebraic expressions we collect the like terms and add them. The sum of several like terms is the like term whose coefficient is the sum of the coefficients of these like terms.

Two ways to solve addition of algebraic expressions.

Horizontal Method: In this method, all expressions are written in a horizontal line and then the terms are arranged to collect all the groups of like terms and then added.

Column Method: In this method each expression is written in a separate row such that there like terms are arranged one below the other in a column. Then the addition of terms is done column wise.

Following illustrations will illustrate these methods.

Examples on addition of algebraic expressions:

1. Add: $6a + 8b - 7c$, $2b + c - 4a$ and $a - 3b - 2c$

Solution:

Horizontal Method:

$$(6a + 8b - 7c) + (2b + c - 4a) + (a - 3b - 2c)$$

$$= 6a + 8b - 7c + 2b + c - 4a + a - 3b - 2c$$

Arrange the like terms together, then add.

Thus, the required addition

$$= 6a - 4a + a + 8b + 2b - 3b - 7c + c - 2c$$

$$= 3a + 7b - 8c$$

Column Method:

Solution:

Writing the terms of the given expressions in the same order in form of rows with like terms below each other and adding column wise;

$$6a + 8b - 7c$$

$$- 4a + 2b + c$$

$$\begin{array}{r} a - 3b - 2c \\ \hline 3a + 7b - 8c \end{array}$$

Ans: $3a + 7b - 8c$

Practice work:

- Add: $5x^2 + 7y - 8$, $4y + 7 - 2x^2$ and $6 - 5y + 4x^2$
- Add: $8x^2 - 5xy + 3y^2$, $2xy - 6y^2 + 3x^2$ and $y^2 + xy - 6x^2$
- Add: $11a^2 + 8b^2 - 9c^2$, $5b^2 + 3c^2 - 4a^2$ and $3a^2 - 4b^2 - 4c^2$
- Add the $3x + 2y$ and $x + y$.
- Add: $x + y + 3$ and $3x + 2y + 5$
- Add: $5x^2 + 7y - 6z^2$, $4y + 3x^2$, $9x^2 + 2z^2 - 9y$ and $2y - 2x^2$
- Add: $xy^2 + 4x^2y - 7x^2y - 3xy^2 + 3$ and $x^2y + xy^2$
- Add: $a^2 + b^2 + c^2 - 3abc$ and $a^2 - b^2 + c^2 + abc$

Subtraction of Algebraic Expressions

Subtraction of algebraic expressions are explained in each steps:

Steps I: Arrange the terms of the given expressions in the same order.

Steps II: Write the given expressions in two rows in such a way that the like terms occur one below the other, keeping the expression to be subtracted in the second row.

Steps III: Change the sign of each term in the lower row from + to - and from - to +.

Steps IV: With new signs of the terms of lower row, add column wise.

1. Subtract $4a + 5b - 3c$ from $6a - 3b + c$

Solution:

$$\begin{array}{r} 6a - 3b + c \\ + 4a + 5b - 3c \\ (-) \quad (-) \quad (+) \\ \hline 2a - 8b + 4c \end{array}$$

Ans: $2a-8b+4c$

Practice Work:

1.Subtract $3x^2 - 6x - 4$ from $5 + x - 2x^2$

2.Subtract $3x + y - 3z$ from $9x - 5y + z$

3. Subtract $5x+9+8x^2$ from $7x^2+9x+18$