

Addition and Subtraction of Algebraic Expression

① Add $7x^2 - 4x + 5$ and $9x - 10$

$$\begin{array}{r} \text{1st Method. } 7x^2 - 4x + 5 \\ + 9x - 10 \\ \hline 7x^2 + 5x - 5 \quad \underline{\text{Ans.}} \end{array}$$

2nd Method.

$$\begin{aligned} & 7x^2 - 4x + 5 + 9x - 10 \\ &= 7x^2 + (-4x + 9x) + (5 - 10) \\ &= 7x^2 + 5x - 5 \\ &= 7x^2 + 5x - 5 \quad \underline{\text{Ans.}} \end{aligned}$$

② Subtract $5x^2 - 4y^2 + 6y - 3$ from $7x^2 - 4xy + 8y^2 + 5x - 3y$

1st Method

$$\begin{array}{r} 7x^2 + 8y^2 - 4xy + 5x - 3y \\ + 5x^2 - 4y^2 \qquad \qquad \qquad + 6y - 3 \\ (-) \quad (+) \qquad \qquad \qquad (-) \quad (+) \\ \hline 2x^2 + 12y^2 - 4xy + 5x - 9y + 3 \quad \underline{\text{Ans.}} \end{array}$$

2nd Method

$$\begin{aligned} & 7x^2 - 4xy + 8y^2 + 5x - 3y - (5x^2 - 4y^2 + 6y - 3) \\ &= 7x^2 - 4xy + 8y^2 + 5x - 3y - 5x^2 + 4y^2 - 6y + 3 \\ &= (7x^2 - 5x^2) + (8y^2 + 4y^2) - 4xy + 5x + (-3y - 6y) + 3 \\ &= 2x^2 + 12y^2 - 4xy + 5x - 9y + 3 \quad \underline{\text{Ans.}} \end{aligned}$$

Add the following

(i) $ab - bc, bc - ca, ca - ab$

(ii) $a - b + ab, b - c + bc, c - a + ac$

(iii) $2p^2q^2 - 3pq + 4, 5 + 7pq - 3p^2q^2$

(iv) $l^2 + m^2, m^2 + n^2, n^2 + l^2, 2km + 2mn + 2nl$

Subtract the following

(i) $4a - 7ab + 3b + 12$ from $12a - 9ab + 5b - 3$

(ii) $3xy + 5yz - 7za$ from $5xy - 2yz - 2yz + 10xyz$

(iii) $4p^2q - 3pq + 5p^2q^2 - 8p + 7q - 10$ from
 $18 - 3p - 11q + 5pq - 2pq^2 + 5p^2q$.

