

MATHEMATICS

Class-7th

Chapter-12

Algebraic
expressions

Exercise-12.2

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class - VII

Mathematics

Ex - 1.2.2.

Algebraic Expression.

Q. 1. Sol.

$$\begin{aligned} \text{(i)} \quad & 21b - 32 + 7b - 20b \\ &= 21b + 7b - 20b - 32 \\ &= (21 + 7 - 20)b - 32 \\ &= 8b - 32 \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad & -z^2 + 13z^2 - 5z + 7z^3 - 15z \\ &= 7z^3 - z^2 + 13z^2 - 5z - 15z \\ &= 7z^3 + (-1 + 13)z^2 + (-5 - 15)z \\ &= 7z^3 + 12z^2 - 20z. \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad & p - (p - q) - q - (q - p) \\ &= p - p + q - q - q + p \\ &= \cancel{p} - \cancel{p} + p + q - q - q \\ &= p - q \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(iv)} \quad & 3a - 2b - ab - (a - b + ab) + 3ab + b - a \\ &= 3a - 2b - ab - a + b - ab + 3ab + b - a \\ &= 3a - a - a - 2b + b + b - ab - ab + 3ab \\ &= 3a - 2a - \cancel{2b} + \cancel{2b} - 2ab + 3ab \\ &= a + ab \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(vi)} \quad & (3y^2 + 5y - 4) - (8y - y^2 - 4) \\ &= 3y^2 + 5y - 4 - 8y + y^2 + 4 \\ &= 3y^2 + y^2 + 5y - 8y - \cancel{4} + \cancel{4} \\ &= 4y^2 - 3y \quad \checkmark \end{aligned}$$

Q 2: Sol. ~~Add.~~

$$\begin{aligned} \text{(i)} \quad & (3mn) + (-5mn) + (8mn) + (-4mn) \\ &= 3mn - 5mn + 8mn - 4mn \\ &= 3mn + 8mn - 5mn - 4mn \\ &= 11mn - 9mn \\ &= 2mn. \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad & t - 8tz + 3tz - z + z - t \\ &= \cancel{t} - \cancel{t} - 8tz + 3tz - z + z \\ &= -5tz \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad & (-7mn + 5) + (12mn + 2) + (9mn - 8) + (-2mn - 3) \\ &= -7mn + 5 + 12mn + 2 + 9mn - 8 + (-2mn - 3) \\ &= -7mn + 12mn + 9mn - 2mn + 5 + 2 - 8 - 3 \\ &= 21mn - 9mn + 7 - 11 \\ &= 12mn - 4 \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(iv)} \quad & (a + b - 3) + (b - a + 3) + (a - b + 3) \\ &= a + b - 3 + b - a + 3 + a - b + 3 \\ &= \cancel{a} + \cancel{a} - \cancel{a} + b + \cancel{b} - \cancel{b} + 3 + 3 - 3 \\ &= a + b + 3 \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{(v)} \quad & 4x^2y + (-3xy^2) + (-5xy^2) + (5x^2y) \\ &= 4x^2y - 3xy^2 - 5xy^2 + 5x^2y \\ &= 4x^2y + 5x^2y - 3xy^2 - 5xy^2 \\ &= 9x^2y - 8xy^2. \quad \checkmark \end{aligned}$$