

12.8.21

EXERCISE : 20(B)

1. Evaluate :

$$\begin{aligned} \text{i)} \quad (23 - 15) + 4 \\ = 8 + 4 \\ = 12 \end{aligned}$$

$$\begin{aligned} \text{ii)} \quad 5x + (3x + 7x) \\ = 5x + 10x \\ = 15x \end{aligned}$$

$$\begin{aligned} \text{iii)} \quad 6m - (4m - m) \\ = 6m - 3m \\ = 3m \end{aligned}$$

$$\begin{aligned} \text{iv)} \quad (9a - 3a) + 4a \\ = 6a + 4a \\ = 10a \end{aligned}$$

$$\begin{aligned} \text{v)} \quad 35b - (16b + 9b) \\ = 35b - 25b \\ = 10b \end{aligned}$$

$$\begin{aligned} \text{vi)} \quad (3y + 8y) - 5y \\ = 11y - 5y \\ = 6y \end{aligned}$$

2. Simplify :

$$\begin{aligned} \text{i)} \quad 12x - (5x + 2x) \\ = 12x - 7x \\ = 5x \end{aligned}$$

$$\begin{aligned} \text{ii)} \quad 10m + (4n - 3n) - 5n \\ = 10m + n - 5n \\ = 10m - 4n \end{aligned}$$

$$\begin{aligned} \text{iii)} \quad (15b - 6b) - (8b + 4b) \\ = 9b - 12b \\ = -3b \end{aligned}$$

$$\begin{aligned} \text{iv)} \quad -(-4a - 8a) \\ = -(-12a) \\ = 12a \end{aligned}$$

$$\begin{aligned} \text{v)} \quad x - (x - y) - (x + y) \\ = x - \cancel{x} + y + \cancel{x} - y \\ = x \end{aligned}$$

$$\begin{aligned} \text{vi)} \quad p + (-q - r - s) - (p - q - r) \\ = p - \cancel{q} - \cancel{r} - s - p + \cancel{q} + \cancel{r} \\ = -s \end{aligned}$$

$$\begin{aligned} \text{vii)} \quad (a + b) - (c + d) - (e - f) \\ = a + b - c - d - e + f \end{aligned}$$

$$\begin{aligned} \text{viii)} \quad 3x + (8x - 5x) - (7x) \\ = 3x + 3x - 6x \\ = 0 \end{aligned}$$

$$\begin{aligned} \text{ix)} \quad a - (a - b - c) \\ = a - a + b + c \\ = b + c \end{aligned}$$

$$\begin{aligned} \text{x)} \quad 6a^2 + (2a^2 - a^2) - (a^2 - b^2) \\ = 6a^2 + a^2 - a^2 + b^2 \\ = 6a^2 + b^2 \end{aligned}$$

$$\begin{aligned} \text{xi)} \quad 2m - (3m + 2n - 6n) \\ = 2m - 3m - 2n + 6n \\ = -m + 4n \end{aligned}$$

$$\begin{aligned} \text{xii)} \quad -m - n - (-m) - m \\ = -m - n + m - m \\ = -m - n \end{aligned}$$

$$\begin{aligned} \text{xiii)} \quad x + y - (x + y - x) \\ = x + y - (x - y + x) \\ = x + y - x + y - x \\ = 2y - x \\ = x + y - (x + y - x) \\ = x + y - (y) \\ = x + y - y \\ = x \end{aligned}$$

$$\begin{aligned} \text{xiv)} \quad 25y - (5x - 10y + 6x - 3y) \\ = 25y - 5x + 10y - 6x + 3y \\ = 25y + 10y + 3y - 5x - 6x \\ = 38y - 11x \end{aligned}$$

$$\begin{aligned} \text{xv)} \quad a - (2a - 4a + 3a) \\ = a - (2a - 4a - 3a) \\ = a - 2a + 4a + 3a \\ = 6a \end{aligned}$$

$$\begin{aligned} \text{xvi)} \quad 3x + (2x - x + 2) \\ = 3x + (2x - x - 2) \\ = 3x + 2x - x - 2 \\ = 5x - x - 2 \\ = 4x - 2 \end{aligned}$$

$$\begin{aligned} \text{xvii)} \quad -(y - x) - (x + y - 2x + y) \\ = -(y - x) - (x + y - 2x - y) \\ = -y + x - x - y + 2x + y \\ = 2x - y \end{aligned}$$

$$\begin{aligned} \text{xviii)} \quad 5x^2 - (3x - x^2 - 4) \\ = 5x^2 - (3x + x^2 + 4) \\ = 5x^2 - x^2 - 3x - 4 \\ = 6x^2 - 3x - 4 \end{aligned}$$

3. Simplify :-

$$\begin{aligned} \text{i)} & x - (y - z) + x + (y - z) + y - (z + x) \\ & = x - y + z + x + y - z + y - z - x \\ & = x + y - z \end{aligned}$$

$$\begin{aligned} \text{ii)} & x - [y + \{x - (y + x)\}] \\ & = x - [y + \{x - y - x\}] \\ & = x - [y + x - y - x] \\ & = x - x + x + x \\ & = x \end{aligned}$$

$$\begin{aligned} \text{iii)} & 4x + 3(2x - 5y) \\ & = 4x + 6x - 15y \\ & = 10x - 15y \end{aligned}$$

$$\begin{aligned} \text{iv)} & 2(3a - b) - 5(a - 3b) \\ & = 6a - 2b - 5a + 15b \\ & = 6a - 5a - 2b + 15b \\ & = a + 13b \end{aligned}$$

$$\begin{aligned} \text{v)} & p + 2(q - r + p) \\ & = p + 2q - 2r - 2p \\ & = p - 2p + 2q - 2r \\ & = -p + 2q - 2r \end{aligned}$$

$$\begin{aligned} \text{vi)} & a - [-\{-(a - b - c)\}] \\ & = a - [-\{-(a - b + c)\}] \end{aligned}$$

$$= a - [-\{-a+b-c\}]$$

$$= a - [a - b + c]$$

$$= a - a + b - c$$

$$= b - c$$

$$\text{vii)} 3x - [5y - \{6y + 2(10y - x)\}]$$

$$= 3x - [5y - \{6y + 20y - 2x\}]$$

$$= 3x - [5y - 6y - 20y + 2x]$$

$$= 3x - 5y + 6y + 20y - 2x$$

$$= 3x - 2x - 5y + 6y + 20y$$

$$= x + 21y$$

$$\text{viii)} 5\{a^2 - a(a - a - 2)\}$$

$$= 5\{a^2 - a(a - a + 2)\}$$

$$= 5\{a^2 - a^2 + a^2 - 2a\}$$

$$= 5a^2 - 5a^2 + 5a^2 - 10a$$

$$= 5a^2 - 10a$$

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