

Ex 20(B)

1: Evaluate :-

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

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

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

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

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

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

2. Simplify

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

$$\begin{aligned} \text{ii) } & 10m + (4n - 3n) - 5n \\ &= 10m + 1n - 5n \\ &= 10m + (-4n) \\ &= 10m - 4n \end{aligned}$$

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

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

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

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

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

$$\begin{aligned} \text{viii) } & 3x + (8x - 5x) - (7x - x) \\ &= 3x + 8x - 5x - 7x + x \\ &= 3x + 8x + x - 5x - 7x \\ &= 12x - 5x - 7x \\ &= 12x - 12x \\ &= 0 \end{aligned}$$

50) $a - (a - b - c)$ (x) $6a^2 + (2a^2 - a^2) - (a^2 - b^2)$
 $= a - a + b + c = 6a^2 + 2a^2 - a^2 - a^2 + b^2$
 $= b + c = -a^2 - a^2 + 2a^2 + b^2 + b^2$
 $= 6a^2 + b^2$

x1) $2m - (3m + 2n - 6n)$ (xii) $-m - n - (-m) - m$
 $= 2m - 3m - 2n + 6n = -m - n + m - m$
 $= -m + 4n = -m - n$
 $= 4n - m$

xiii) $x + y - (x + y - x)$ (xiv) $25y - (5x - 10y + 6x - 3y)$
 $= x + y - x - y + x = 25y - 5x + 10y - 6x + 3y$
 $= x = 25y + 10y + 3y - 5x - 6x$
 $= 38y - 11x$

xv) $3x + (2x - x + 2)$ (xvi) $a - (2a - 4a + 3a)$
 $= 3x + (2x - x + 2) = a - (2a - 4a + 3a)$
 $= 3x + x + 2 = a - (2a - 7a)$
 $= 4x + 2 = a + 5a$
 $= 4x + 2 = 6a$

xvii) $5x^2 - (3x - x^2 - 4)$ (xviii) $-(y - x) - (x + y)$
 $= 5x^2 - (3x - x^2 + 4) = -y + x - x - y$
 $= 5x^2 - 3x + x^2 - 4 = -y + x - x - y + 2x + y$
 $= 5x^2 + x^2 - 3x - 4 = 2x - y$
 $= 6x^2 - 3x - 4$

$= -(y - x) - (x + y)$
 $= -y + x - x - y$
 $= -y + x - x - y + 2x + y$
 $= 2x - y$

CW 6.8.21

3. Simplify

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

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

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

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

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

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

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

$$\begin{aligned}
 \text{vii) } &3x - [5y - \{ 6y + 2(10y - x) \}] \\
 &= 3x - [5y - \{ 6y + 20y - 2x \}] \\
 &= 3x - [5y - 6y - 20y + 2x] \\
 &= 3x - 5y + 6y + 20y - 2x \\
 &= 3x - 2x - 5y + 6y + 20y \\
 &= x + 21y
 \end{aligned}$$

$$\begin{aligned}
 \text{viii) } &5 \{ a^2 - a(a - a - 2) \} \\
 &= 5 \{ a^2 - a(a - a + 2) \} \\
 &= 5 \{ a^2 - a^2 + a^2 - 2a \} \\
 &= 5a^2 - 10a
 \end{aligned}$$