

c.w
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Exercise - 20 (B)

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$$1. \text{ i) } (23 - 15) + 4 = 23 - 15 + 4 = 8 + 4 = 12$$

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

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

$$\begin{aligned} \text{iv) } & (9a - 3a) + 4a \\ & = 8a - 3a + 4a \\ & = 10a \end{aligned}$$

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

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

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

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

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

$$\begin{aligned} \text{iv)} & -(-4a - 8a) \\ & = 0 + 4a + 8a \\ & = 12a \end{aligned}$$

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

$$\begin{aligned} \text{vi)} & p + (-q - r - s) - (p - q - r) \\ & = p + 0 - q - r - s - 0 + q + r \\ & = -s \end{aligned}$$

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

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

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

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

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

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

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

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

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

$$\begin{aligned} \text{x vi)} \quad & a - (2a - 4a + 3a) \\ & = a - 2a + 4a - 3a \\ & = a - 2a + 4a - 3a \\ & = 0 \end{aligned}$$

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

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

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$$\begin{aligned}
 \text{3. i)} & X - (y - z) + X + (y - z) + y - (z + x) \\
 & = X - y + z + X + y - z + y - z - X \\
 & = X + y - z
 \end{aligned}$$

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

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

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

$$\begin{aligned}
 \text{v)} & p + 2(q - r + p) \\
 & = p + 2(q - r + p) \\
 & = p + 2q - 2r + 2p \\
 & = 3p + 2q - 2r
 \end{aligned}$$

$$\begin{aligned}
 \text{vi)} & a - [-\{-(a - b - c)\}] \\
 & = a - [-\{-(a - b + c)\}] \\
 & = a - [-\{-a + b - c\}] \\
 & = a - [-a + b - c] \\
 & = a + a - b + c \\
 & = 2a + b - c
 \end{aligned}$$

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$$\begin{aligned}
 \text{vii)} \quad & 3x - [5y - (6y + 2(10y - x))] \\
 & = 3x - [5y - (6y + 20y - x)] \\
 & = 3x - [5y - 6y - 20y + x] \\
 & = 3x - [5y - (60y + 6xy) + (20y - 2x)] \\
 & = 3x - [5y - (80y + 6xy - 2x)] \\
 & = 3x - [5y - 80y - 6xy + 2x] \\
 & = 3x - 5y + 80y + 6xy - 2x \\
 & = 1x + 75y + 6xy
 \end{aligned}$$

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