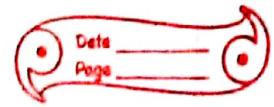


8/10/21

ch-20
Substitution



Exercise 20 (A)

3. Find the value of:

i) $4pq \times 2\pi$, when $p=5$, $q=3$ and $\pi = \frac{1}{2}$

Ans. $(4 \times 3 \times 5) \times (2 \times \frac{1}{2}) = 60 \times 1 = 60 \Rightarrow$ Ans

ii) $\frac{yz}{x}$, when $x=8$, $y=4$ and $z=16$

Ans. $\frac{4 \times 16}{8} = \frac{64}{8} = 8$

iii) $\frac{a+b+c}{2a}$, when $a=5$, $b=7$ and $c=2$

Ans. $\frac{5+7+2}{2 \times 5} = \frac{14}{10} = \frac{7}{5}$

Exercise 20 (B)

2. Simplify:

i) $12x - (5x + 2x)$
 $= 12x - 7x = 5x$

ii) $10m + (4n - 3n) - 5n$
 $= 10m + 1n - 5n$
 $= 10m + (-4n) = 10m - 4n$

iii) $(15b - 6b) - (8b + 4b)$
 $= 9b - 12b$
 $= -3b$

iv) $-(-4a - 8a)$
 $= -(-12a) = 12a$

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

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

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

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

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

$$\begin{aligned} \text{x)} \quad & 6a^2 + (2a^2 - a^2) - (a^2 - b^2) \\ & = 6a^2 + 2a^2 - a^2 - a^2 + b^2 \\ & = 8a^2 - 2a^2 + b^2 \\ & = 6a^2 - b^2 \end{aligned}$$

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

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

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

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

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

$$\begin{aligned} \text{xvi)} \quad & a - (2a - 4a + 3a) \\ & = a - (2a - 4a - 3a) \\ & = a - 2a + 4a + 3a \\ & = 8a - 2a = 6a \end{aligned}$$

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

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

Exercise 20(c)

1- Fill in the blanks:

i) $2a + b - c = 2a + \underline{(b-c)}$

ii) $3x - z + y = 3x - \underline{(z-y)}$

iii) $6p - 5x + q = 6p - \underline{(5x-q)}$

iv) $a + b - c + d = a + \underline{(b-c+d)}$

v) $5a + 4b + 4x - 2c = 4x - \underline{(2c - 5a - 4b)}$

vi) $7x + 2z + 4y - 3 = -3 + 4y + \underline{(7x + 2z)}$

vii) $3m - 2n + 6 = 6 - \underline{(2n - 3m)}$

viii) $2t + r - p - q + s = 2t + r - \underline{(p + q - s)}$