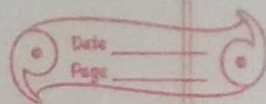


H.w
7/10/21

Ch-20

SUBSTITUTION
EX-20(A)



Q3. Find the value of:

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

$$= 4 \times 5 \times 3 \times 2 \times \frac{1}{2}$$

$$= 60$$

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

$$= \frac{4 \times 8}{16}$$

$$= \frac{32}{16}$$

$$= 2$$

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

$$= \frac{5+7-2}{2 \times 5}$$

$$= \frac{12-2}{10}$$

$$= \frac{10}{10}$$

$$= 1$$

EX-20(B)

Q2. Simplify:

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

$$= 12x - 7x$$

$$= 5x$$

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

$$= 10m + n - 5n$$

$$= 10m - 4n$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ex- 20(c)

Q1) Fill in the blanks:

- (i) $2a + b - c = 2a + (b - c)$
- (ii) $3x - z + y = 3x - (z - y)$
- (iii) $6p - 5x + q = 6p - (5x - q)$
- (iv) $a + b - c + d = a + (b - c + d)$
- (v) $5a + 4b + 4x - 2c = 4x - (2c + 5a - 4b)$
- (vi) $7x + 2z + 4y - 3 = -3 + 4y + (7x + 2z)$
- (vii) $3m - 2n + b = b - (2n - 3m)$
- (viii) $2t + x - p - q + s = 2t + x - (p + q - s)$

$(a+b+c+d) - m = a+b+c+d-m$ (i)
 $a+b-c-d = a+b-(c+d)$ (ii)
 $3x-z+y = 3x-(z-y)$ (iii)
 $6p-5x+q = 6p-(5x-q)$ (iv)
 $a+b-c+d = a+(b-c+d)$ (v)
 $5a+4b+4x-2c = 4x-(2c+5a-4b)$ (vi)
 $7x+2z+4y-3 = -3+4y+(7x+2z)$ (vii)
 $3m-2n+b = b-(2n-3m)$ (viii)
 $2t+x-p-q+s = 2t+x-(p+q-s)$ (ix)
 $(x-y+z) = y+z-x$ (x)
 $(x-y+z) - y+z = x-y+z-y+z = x-2y+2z$ (xi)
 $x+y-z-x-y+z = x+y-z-x-y+z = -2y+2z$ (xii)
 $y-z+x+z-x = y-z+x+z-x = y$ (xiii)
 $(x-y+z) + x = x-x+y+z = y+z$ (xiv)
 $(x-y+z) - x = x-x+y+z = y+z$ (xv)
 $x+y-z-x-y+z = x+y-z-x-y+z = -2y+2z$ (xvi)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xvii)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xviii)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xix)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xx)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxi)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxii)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxiii)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxiv)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxv)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxvi)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxvii)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxviii)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxix)
 $x-y+z-x-y+z = x-y+z-x-y+z = -2y+2z$ (xxx)