Ex 20(B) Swarit Math 6B

HW = 12.08.21

(i) $(23-15)+4=12$

(ii) $5x+(3x+7x)=5x+10x=15x$

(iii) $6m-(4m-m)=m$

(iv) $(9a-3a)+4a$
$= 6a+4a = 10a$

(v) $35b-(16b+9b)$
$= 35b-25b$ $10b$

(vi) $(3y+8y)-5y$
$= 14y-5y = 6y$

2. Simplify:

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

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

(iii) $(15b-6b)-(8b+4b)$
$= 9b-(8b+4b)$
$= 9b-8b-4b$
$= 1b-4b = -3b$

(iv) $-(-4a-8a)$
$= 1+4a+8a$
$= +12a$

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

(vi) $p+(-q-r-s)-(p-q-r)$
$= p-q-r-s-p+q+r$

(vii) $(a+b)-(c+d)-(e-f)$
$= a+b-c-d-e+f$

(viii) $3x+(8x-5x)-(7x-x)$
$= 3x+8x-5x-7x+x$

(ix) $a-(a-b-c)$

$= a-a+b+c$

$= b+c$

(x) $6a^2+(2a^2-a^2)-(a^2-b^2)$

$6a^2+2a^2-a^2-a^2+b^2$

$= 8a^2-a^2-a^2+b^2$

$= 6a^2+b^2$

(xi) $2m-(3m+2n-6n)$

$2m-3m-2n+6n$

$= -m-2n+6n$

$= \cancel{-m-4n}\ 4n-m$

(xii) $-m-n-(-m)-m$

$-m+n+m-m$

$-m-n$

(xiii) $x+y-(x+y-z)$

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

$= x+y-x-y+z$

$= \frac{x-x+y-y}{z}+z$

(xiv)

(xiv) $25y-(5x-10y+6x-3y)$

$= 25y-5x+10y-6x+3y$

$= 25y+10y+3y-5x-6x$

$= 38y-11x$

(xv) $3x+(2x-x+2)$

$= 3x+(2x-x-2)$

$= 3x+2x-x-2$

$= 4x-2$

(xvi) $a-(2a-4a+3a)$

$= a-(2a-4a-3a)$

$= a-2a+4a+3a$

$= \cancel{a+4a+3a}$

$= \cancel{-3a+3a}$

$a-2a+7a$

$\Rightarrow a+7a-2a$

$\Rightarrow 8a-2a$

$= 6a$

(xvii) $5x^2-(3x-x^2-4)$

$= 5x^2-(3x-x^2+4)$

$= 5x^2-3x+x^2-4$

$= 6x^2-3x-4$

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

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

$-y^2+xy-x-y+2x+y$

$= 2x-x-\cancel{y+y}+y^2+xy$

$= x-y^2+xy$

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

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

$= -y+x-x-y+2x+y$

$= 2x-y$

$= 2x-x-x-y-y+y$

$= 2x-2x-2y+y$

$= -y$

3. Simplify

(i) $x-(y-z)+x+(y-z)+y-(z+x)$

$= x-y+z+x+y-z+y-z-x$

$= x+x-y+y+y-z-z-x$

$= x+y-z$

(ii) $x-[y+\{x-(y+x)\}]$

$= x-[y+\{x-y-x\}]$

$= x-[y+x-y-x]$

$= x-y-x+y+x$

$= x-x+y-y$

$= x$

(iii) $4x+3(2x-5y)$

$= 4x+3\times 6x-15y$

$= 4x+6x$

$= 10x-15y$

(iv) $2(3a-b)-5(a-3b)$

$= 2\times(3a-b)-$

$6a-2b-5a+15b$

$= 6a-5a-2b+15b$

$= a+13b$

(v) $p+2(q-r+p)$

$= p+2q-2r+2p$

$p+2p+2p$

$= 5p$

$= p-2p+2q-2r$

$= 2q-2r-2p$

(vi) $a-[-\{-(a-b-c)\}]$

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

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

$= a-a-b+c$

$a-[-\{-(a-b-c)\}]$

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

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

$= a-a+b-c$

$= b-c$

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

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

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

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

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

$= x + y + 20y$

$= x + 21y$

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

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

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

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

$= 5a^2 + 10a$