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EXERCISE - 20(B)

1) Evaluate:

i) $(23-15)+4$
$= 8+4$
$= 12$

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

iii) $6m-(4m-m)$
$= 6m-4m+m$
$= 6m-3m$
$= 3m$

iv) $(9a-3a)+4a$
$= 9a-3a+4a$
$= 9a+4a-3a$
$= 13a-3a$
$= 10a$

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

vi) $(3y+8y)-5y$
$= 3y+8y-5y$
$= 11y-5y$
$= 6y$.

2. Simplify:

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

= The simplified form of the expression $12x-(5x+2x)$ is calculated as below

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

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

The simplified form of the expression $10m+(4n-3n)-5n$ is calculated as below

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

$= 10m - 4n$

iii) $(15b-6b)-(8b+4b)$

The simplified form of the expression $(15b-6b)-(8b+4b)$ is calculated as below

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

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

The simplified form of the expression $-(-4a-8a)$ is calculated as below

$= 4a+8a$

$= 12a.$

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

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

$= x$

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

$= p-q-r-s-p+q+r$

$= -s$

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

$= a+b-c-d-e+f$

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

$= 3x+8x-5x-7x+x$

$= 3x+8x+x-5x-7x$

$= 12x-12x$

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

$= a-a+b+c$

$= b+c$

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

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

$= 6a^2+b^2$

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

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

$= -m+4n$

$= 4n-m$

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

$= -m-n+n-m$

$= -m-m$

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

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

$= x+y-y$

$= x$

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

$= 25$

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

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

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

$= 38y - 11x$

(xv) $3x + (2x - \overline{x+2})$

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

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

$= 4x - 2$

(xvi) $a - (2a - \overline{4a + 3a})$

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

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

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

$= 8a - 2a$

$= 6a$

(xvii) $5x^2 - (3x - \overline{x^2 - 4})$

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

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

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

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

(xviii) $-(y - x) - (x + y - \overline{2x + y})$

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

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

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

$= -y + 2x$

$= 2x - y$

3. Simplify:

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

(ii) $x-[y+\{x-(y+x)\}]$
$= x-[y+\{x-y-x\}]$
$= x-[y-y]$
$= x-0=x$

(iii) $4x+3(2x-5y-y)$
$= 4x+6x-15y$
$= 10x-15y$

(iv) $2(3a-b)-5(a-3b)$
$= 6a-2b-5a+15b$
$= 6a-5a+15b-2b$
$= a+13b$

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

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

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

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

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

$= 3x - [-21y + 2x]$

$= 3x + 21y - 2x$

$= 3x - 2x + 21y$

$= x + 21y$

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

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

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

$= 5a^2 - 10a$