H.W

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Exercise - 20(B)

1. Evaluate:

(i) $(23-15)+4$
(ii) $5x+(3x+7x)$
(iii) $6m-(4m-m)$
(iv) $(9a-3a)+4a$
(v) $35b-(16b+9b)$
(vi) $(3y+8y)-5y$

solution:

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

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

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

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

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

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

2. Simplify:

(i) $12x-(5x+2x)$
(ii) $10m+(4n-3n)-5n$
(iii) $(15b-6b)-(8b+4b)$
(iv) $-(-4a-8a)$

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

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

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

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

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

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

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

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

(xiii) $x+y-(x+\overline{y-x})$

(xiv) $25y-(5x-20y+6x-3y)$

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

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

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

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

solution :

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

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

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

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

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

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

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

viii- $3x+(8x-5x)-(7x-x)$
$=3x+3x-6x=6x-6x=0$

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

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

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xi- $2m-(3m+2n-6n)$
$=2m-3m-2n+6n$
$=-m+4n=4n-m$

xii- $-m-n-(-m)-m$
$=-m-n+m-m=-m-n$

xiii- $x+y-(x+\overline{y-x})$
$=x+y-(x+y-x)$
$=x+y-x-y+x$
$=x-x+x+y-y=x$

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- $a-(2a-\overline{4a+3a})$
$=a-(2a-4a-3a)$
$=a-2a+4a+3a=8a-2a=6a$

xvii- $5x^2-(3x-x^2-y)$
$=5x^2-(3x-x^2+y)=5x^2-3x+x^2-y$
$=5x^2+x^2-3x-y=6x^2-3x-y$

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

3. Simplify :

(i) $x-(y-z)+x+(y-z)+y-(z+x)$
(ii) $x-[y+\{x-(y+x)\}]$
(iii) $4x+3(2x-5y)$
(iv) $2(3a-b)-5(a-3b)$
(v) $p+2(q-\overline{r+p})$
(vi) $a-[-\{-(a-\overline{b-c})\}]$
(vii) $3x-[5y-\{6y+2(10y-x)\}]$
(viii) $5\{a^2-a(a-a-2)\}$

solution :

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

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

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

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

v- $p+2(q-\overline{r+p})$
$=p+2(q-r-p)$
$=p+2q-2r-2p=2q-2r-p$

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

vii- $3x-[5y-\{6y+2(10y-x)\}]$
$=3x-[5y-\{6y+20y-2x\}]$
$=3x-[5y-6y-20y+2x]$
$=3x-5y+6y+20y-2x$
$=3x-2x+6y+20y-5y$
$=x+21y$

viii- $5\{a^2-a(a-\overline{a-2})\}$
$=5\{a^2-a(a-a+2)\}$
$=5\{a^2-a^2+a^2-2a\}$
$=5a^2-5a^2+5a^2-10a$
$=5a^2-10a$