Ex 19(B)

1-i) $(3a+4b+7c)+(-5a+3b-6c)+(4a-2b-4c)$

$= 3a+4a-5a+4b+3b-2b+7c-6c-4c$
$= 2a+5b-3c$

ii) $(2x^2+xy-y^2)+(-x^2+2xy+3y^2)+(3x^2-10xy+4y^2)$

$= 2x^2+3x^2-x^2+xy+2xy-10xy+3y^2+4y^2-y^2$
$= 4x^2-7xy+6y^2$

iii) $(x^2-x+1)+(-5x^2+2x-2)+(3x^2-3x+1)$

$= x^2+3x^2-5x^2+2x-3x-x+1+1-2$
$= -x^2-2x$

~~iv) $(a^2-ab+bc)+(2ab+bc-ab+bc$~~

iv) $(a^2-ab+bc)+(2ab+bc-2a^2)+(-3bc+3a^2+ab)$

$= a^2+3a^2-2a^2+2ab+ab-ab+bc+bc-3bc$
$= 2a^2+2ab-bc$

v) $(4x^2+7-3x)+(4x-x^2+8)+(-10+5x-2x^2)$

$= 4x^2-2x^2-x^2+7+8-10+4x+5x-3x$
$= x^2+5+6x$

vi) $(3x+4xy-y^2)+(xy-4x+2y^2)+(3y^2-xy+6x)$

$= 3y^2+3y^2-y^2+4xy+xy-xy+3x+6x-4x$
$= 4y^2+4xy+5x$

2-i) $(-17x^2 - 2xy + 23y^2) + (-9y^2 + 15x^2 + 7xy) + (13x^2 + 3y^2 - 4xy)$

$= 15x^2 + 13x^2 - 17x^2 + 7xy - 4xy - 2xy + 23y^2 + 3y^2 - 9y^2$
$= 11x^2 + xy + 17y^2$

ii) $(-x^2 - 3xy + 3y^2 + 8) + (3x^2 - 5y^2 - 3 + 4xy) + (-6xy + 2x^2 - 2 + y^2)$

$= 3x^2 + 2x^2 - x^2 + 4xy - 3xy - 6xy + 3y^2 + y^2 - 5y^2 + 8 - 3 - 2$
$= 4x^2 - 5xy - y^2 + 3$

iii) $(a^3 - 2b^3 + a) + (b^3 - 2a^3 + b) + (-2b + 2b^3 - 5a + 4a^3)$

$= a^3 + 4a^3 - 2a^3 + 2b^3 + b^3 - a - 5a + b - 2b$
$= 3a^3 + b^3 + 4a - b$

3-i) $3a - (a + 2b)$

$= 3a - a - 2b$
$= 2a - 2b$

ii) $(5x - 3y) - (x + y)$

$= 5x - 3y - x - y$
$= 5x - x - 3y - y$
$= 4x - 1y$

iii) $(8a + 15b) - (3b - 7a)$

$= 8a + 15b - 3b + 7a$
$= 8a + 7a + 15b - 3b$
$= 15a + 12b$

iv) $(8x + 7y) - (4y - 3x)$

$= 8x + 7y - 4y + 3x$
$= 8x + 3x + 7y - 4y$
$= 11x + 3y$

v) $7-(4a-5)$

$= 7-4a+5$

$= 7+5-4a$

$= 12-4a$

vi) $(6y-13)-(4-7y)$

$= 6y-13-4+7y$

$= 6y+7y-13-4$

$= 13y-17$

4. i) $5a-3b+2c$ from $a-4b-2c$

$$\begin{array}{r} a-4b-2c \\ 5a-3b+2c \\ \hline -4a-b-4c \end{array}$$ (Ans) $-4a-b-4c$

ii) $4x-6y+3z$ from $12x+7y-21z$

$$\begin{array}{r} 12x+17y-21z \\ 4x-6y+3z \\ \hline 8x+13y-24z \end{array}$$ (Ans) $8x+13y-24z$

iii) $5-a-4b+4c$ from $5a-7b-2c$

$$\begin{array}{r} 5a-7b+2c \\ 5-a-4b+4c \\ \hline -5+6a-3b-2c \end{array}$$ (Ans) $-5+6a-3b-2c$

iv) $-8x-12y+17z$ from $x-y-z$

$$\begin{array}{r} x-y-z \\ -8x-12y-17z \\ \hline 9x+11y-18z \end{array}$$

(Ans) $9x+11y-18z$

v) $2ab+cd-ac-2bd$ from $ab-2cd+2ac+bd$

$$\begin{array}{r} ab+2ac+bd-2cd \\ 2ab-ac-2bd+cd \\ \hline -ab+ac+3bd-3cd \end{array}$$

(Ans) $-ab+ac+3bd-3cd$

5-) Take $-ab+bc-ca$ from $bc-ca+ab$

$$\begin{array}{r} bc-ca+ab \\ +bc-ca-ab \\ \hline 2ab \end{array}$$

(Ans) $2ab$

ii) Take $5x+6y-3z$ from $3x+5y-4z$

$$\begin{array}{r} 3x+5y-4z \\ 5x+6y-3z \\ \hline -2x-y-z \end{array}$$

iii) Take $-\frac{3}{2}p + q - r$ from $\frac{1}{2}p - \frac{1}{3}q - \frac{3}{2}r$

$$\frac{1}{2}p - \frac{1}{3}q - \frac{3}{2}r$$

$$-\frac{3}{2}p + q - r$$

$$\frac{+ \quad - \quad +}{2p - \frac{4}{3}q - \frac{1}{2}r}$$

(Ans) $2p - \frac{4}{3}q - \frac{1}{2}r$

iv) Take $1 - a + a^2$ from $a^2 + a + 1$

$$a^2 + a + 1$$

$$a^2 - a + 1 \qquad \text{(Ans) } 2a$$

$$\frac{- \quad + \quad -}{2a}$$

6) From the sum of $x + y - 2z$ and $2x - y + z$ subtract $x + y + z$

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

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

$$= 3x - z$$

$$3x - z = (x + y + z)$$

$$= 3x - x - z - z - y$$

$$= 2x - 2z - y$$

1) From the sum of $3a-2b+4c$ and $3b-2c$ subtract $a-b-c$.

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

$$\begin{array}{r} b+2c+3a \\ -b-c+a \\ \hline 2b+3c+2a \end{array}$$

2) Subtract $x-2y-z$ from the sum of $3x-y+z$ and $x+y-3z$

$3x-y+z+x+y-3z$
$= 3x+x-y+y+z-3z$
$= 4x-2z$

$$\begin{array}{r} 4x-2z \\ +x-z-2y \\ \hline 3x-z+2y \end{array}$$

3) Subtract the sum of $x+y$ and $x-z$ from the sum of $x-2z$ and $x+y+z$

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