Exercise 8C

Q1

Answer :

(i) Required sum = $3x + 7x$
$= (3+7)x = 10x$

(ii) Required sum = $7y + (-9y)$
$= (7-9)y = -2y$

(iii) Required sum = $2xy + 5xy + (-xy)$
$= (2+5-1)xy = 6xy$

(iv) Required sum = $3x+2y$

(v) Required sum = $2x^2 + (-3x^2) + 7x^2$
$=(2-3+7)x^2 = 6x^2$

(vi) Required sum = $7xyz + (-5xyz) + 9xyz + (-8xyz)$
$= (7-5+9-8)xyz = 3xyz$

(vii) Required sum = $6a^3 + (-4a^3) + 10a^3 + (-8a^3)$
$=(6-4+10-8)a^3 = 4a^3$

(viii) Required sum = $x^2 - a^2 + (-5x^2 + 2a^2) + (-4x^2 + 4a^2)$
Rearranging and collecting the like terms = $x^2 - 5x^2 - 4x^2 - a^2 + 2a^2 + 4a^2$
$= (1-5-4)x^2 + (-1+2+4)a^2$
$= -8x^2 + 5a^2$

Q2

Answer :

(i)

$$\begin{array}{r} x - 3y - 2z \\ 5x + 7y - z \\ -7x - 2y + 4z \\ \hline -x + 2y + z \end{array}$$

(ii)

$$\begin{array}{r} m^2 - 4m + 5 \\ -2m^2 + 6m - 6 \end{array}$$

$$\begin{array}{r} -m^2-2m-7 \\ \hline -2m^2+0\times m-8 \end{array}$$

$$= -2m^2+0-8 = -2m^2-8$$

(iii)

$$\begin{array}{r} 2x^2-3xy+y^2 \\ -7x^2-5xy-2y^2 \\ 4x^2+xy-6y^2 \\ \hline \\ \hline -x^2-7xy-7y^2 \end{array}$$

(iv)

$$\begin{array}{r} 4xy-5yz-7zx \\ -5xy+2yz+zx \\ -2xy-3yz+3zx \\ \hline -3xy-6yz-3zx \end{array}$$

Q3

Answer :

(i) Sum of the given expressions

= (3a − 2b + 5c)+(2a + 5b − 7c)+ (− a − b + c)

Rearranging and collecting the like terms

= 3a+2a-a-2b+5b-b+5c-7c+c

= (3+2-1)a + (-2+5-1)b + (5-7+1)c

= 4a+2b-c

(ii) Sum of the given expressions

$= (8a - 6ab + 5b) + (-6a - ab - 8b) + (-4a + 2ab + 3b)$

Rearranging and collecting the like terms

$=(8-6-4)a + (-6 -1+2)ab + (5- 8+ 3)b$

$= -2a-5ab+0 = -2a - 5ab$

(iii) Sum of the given expressions

$= (2x^3 - 3x^2 + 7x - 8) + (-5x^3 + 2x^2 - 4x + 1) + (3 - 6x + 5x^2 - x^3)$

Rearranging and collecting the like terms

$=2x^3-5x^3 - x^3 - 3x^2 + 2x^2 + 5x^2 +7x-4x-6x-8+1+3$

$= (2-5-1)x^3 +(-3+2+5)x^2+(7-4-6)x-4$

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

(iv) Sum of the given expressions

$= (2x^2 - 8xy + 7y^2 - 8xy^2)+(2xy^2 + 6xy - y^2 + 3x^2)+(4y^2 - xy - x^2 + xy^2)$

Rearranging and collecting the like terms

$= 2x^2 +3x^2 - x^2 + 7y^2 - y^2 +4y^2 - 8xy + 6xy - xy- 8xy^2 +2xy^2 + xy^2$

$= (2 +3- 1)x^2 + (7 - 1 +4)y^2 + (-8 + 6 -1)xy + (- 8 +2 +1)xy^2$

$= 4x^2 + 10y^2 - 3xy -5xy^2$

(v) Sum of the given expressions

$= (x^3 + y^3 - z^3 + 3xyz)+(- x^3 + y^3 + z^3 - 6xyz)+(x^3 - y^3 - z^3 - 8xyz)$

Rearranging and collecting the like terms

$= x^3 -x^3 + x^3 + y^3 + y^3 - y^3 -z^3 + z^3 - z^3 + 3xyz-6xyz-8xyz$

$= (1-1+1)x^3 + (1+1-1)y^3 + (-1+1-1)z^3 +(3-6-8)xyz$

$= x^3 + y^3 - z^3 -11xyz$

(vi) Sum of the given expressions

$= (2 + x - x^2 + 6x^3)+(-6 -2x + 4x^2 -3x^3)+(2 + x^2)+(3 - x^3 + 4x - 2x^2)$

Rearranging and collecting the like terms

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

$= (6-3-1)x^3+(-1+4+1-2)x^2+(1-2+4)x+1$

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

Q4

Answer :

Change the sign of each term of the expression that is to be subtracted and then add.

********** END **********