Swarit Math 6-B-3533

Date: 4-8-2021

Ex-19(B)

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

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

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

Ans:
$$\begin{array}{r} 2x^2+2xy-y^2 \\ -x^2+2xy+3y^2 \\ 3x^2-10xy+4y^2 \\ \hline 4x^2-6xy+6y^2 \end{array}$$

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

$$\begin{array}{r} 2x^2-x+1 \\ -5x^2+2x-2 \\ 3x^2-3x+1 \\ \hline -x^2-2x+0 \end{array}$$

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

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

(v) $4x^2 + 7 - 3x$
$-x^2 + 8 + 4x$
$-2x^2 - 10 + 5x$
$2x^2 + 5 + 6x$

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

2. Add

(i) $-17x^2 + 12xy + 23y^2 - 9y^2 + 15x^2 + 7xy$
$+13x^2 + 3y^2 - 4xy$

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

$\Rightarrow 11x^2 + xy + 17y^2$

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

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

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

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

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

$= 2a - 2b$

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

$= 5x - 3y - x - y$

$= 4x - 4y$

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

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

$= 15a + 12b$

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

$= 11x + 3y$

(v) $7 - (4a - 5) = 7 - 4a + 5 = 12 - 4a$

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

$= 13y - 17$

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

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

$= -4a - b - 4c$

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

$= 12x + 7y - 21z - 4x + 6y - 3z$

$= 8x + 13y - 24z$

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

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

$= 6a - 3b - 2c - 5$

(iv) $(ab - 2cd + 2ac + bd) + (3ab + cd - 2ac - 2bd)$

$= ab - 2ab - 2cd + cd + 2ac + ac + bd + 2bd$

$= -ab - 3cd + 3ac + 3bd.$

(5) (i) $(bc - ca + ab) - (-ab + bc - ca)$

$= bc - ca + ab + ab - bc + ca$

$= 2ab - 0 - 0 = 2ab$

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

$= 3x + 5y - 4z - 5x - 6y + 3z$

$= -2x - y - z$

(iii) $\left(\frac{p}{2} - \frac{q}{3} - \frac{3r}{2}\right) - \left(\frac{-3p}{2} + q - r\right)$

$= \left(\frac{p}{2} + \frac{3p}{2}\right) + \left(-\frac{q}{3} - q\right) + \left(\frac{-3r}{2} + r\right)$

$= \frac{4p}{2} + \left(\frac{-q - 3q}{3}\right) + \left(\frac{-3r + 2r}{2}\right)$

$= 2p - \frac{4q}{3} - \frac{r}{2}$

(iv) $(a^2 + a + 1) - (1 - a + a^2)$

$= a^2 + a + 1 - 1 + a - a^2$

$= 0 + 0 + 2a = 2a$

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

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

$= 2x - y - 2z$

(7) $(3a - 2b + 4c) + (3b - 2c) - (a - b - c)$

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

$= 2a + 2b + 3c$

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(8) $(3x - y + 2) + (x + y - 3z) - (x - 2y - 2)$

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

$= 3x + 2y - z$

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

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

So $(4x - 2z) - (2x + y - z)$

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

$= 2x - y - z$.