

19 (B)

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

(ii) $2x^2 + xy + y^2$, $-x^2 + 2xy + 3y^2$, $3x^2 - 10xy + 4y^2$
 Ans- $(2x^2, -x^2, 3x^2)$, $(xy, 2xy, -10xy)$, $(y^2, 3y^2, 4y^2)$
 $= 2x^2 + xy + y^2 - x^2 + 2xy + 3y^2 - 10xy + y^2 + 3y^2 + 4y^2$
 $= 2x^2 - x^2 + 3x^2 + xy + 2xy - 10xy + y^2 + 3y^2 + 4y^2$
 $= 4x^2 - 7xy + 8y^2$

(iii) Ans- $(x^2, -5x^2, 3x^2)$, $(x, 2x, 3x)$, $(1, -2, 1)$
 $y^2 - x + 1 - 5x^2 + 2x - 2 + 3x^2 - 3x + 1$
 $x^2 - 5x^2 + 3x^2 + x + 2x + 3x + 1 - 2 + 1$
 $= -1x^2 + 6x$

(iv) Ans- $a^2 - ab + bc$, $2ab + bc - 2a^2$ and $-3bc + 3a^2 + ab$
 $= (a^2, -2a^2, 3a^2)$, $(ab, 2ab, ab)$, $(bc, bc, -3bc)$
 $= a^2 - ab + bc + 2ab + bc - 2a^2 - 3bc + 3a^2 + ab$
 $= a^2 - 2a^2 + 3a^2 + ab + 2ab + ab + bc + bc - 3bc$
 $= 2a^2 + 4ab - 1bc$

(v) $4x^2 + 7 - 3x$, $4x - x^2 + 8$ and $-10 + 5x - 2x^2$
 $= (4x^2, -x^2, -2x^2)$, $(7 + 8 - 10)$, $(-3x, 4x, 5x)$
 $= 4x^2 + 7 - 3x + 4x - x^2 + 8 - 10 + 5x - 2x^2$
 $= 4x^2 - x^2 - 2x^2 + 7 + 8 - 10 - 3x + 4x + 5x$
 $= 1x^2 + 5 + 6x$

i) $3x + 4xy - y^2$, $xy - 4x + 2y^2$ and $3y^2 - xy + 6x$
 $(3x, -4x, 6x)$, $(4xy, xy, -xy)$, $(y^2 + 2y^2 + 3y^2)$
 $= 3x + 4xy - y^2 + xy - 4x + 2y^2 + 3y^2 - xy + 6x$
 $= 3x - 4x + 6x + 4xy + xy - xy - y^2 + 2y^2 + 3y^2$
 $= 5x + 4xy + 4y^2$

i) $-17x^2 - 2xy + 23y^2$, $-9y^2 + 15x^2 + 7xy$ and $13x^2 + 3y^2 - 4xy$
 $= (-17x^2 + 15x^2, 13x^2)$, $(-2xy, 7xy, -4xy)$, $(3y^2, -9y^2, 3y^2)$
 $= -17x^2 - 2xy + 23y^2 - 9y^2 + 15x^2 + 7xy + 13x^2 + 3y^2 - 4xy$
 $= 11x^2 + xy + 17y^2$

How - finish 1, 2, 3 of 10 A

$$\begin{aligned}
 & (i) \quad -x^2 - 3xy + 3y^2 + 8, 3x^2 - 5y^2 - 3 + 4xy \text{ and } -6xy + 2x^2 - 2 + y^2 \\
 & = (-x^2, 3x^2, 2x^2), (-3xy, 4xy, -6xy), (3y^2, -5y^2, y^2) \\
 & \quad (8, -3, -2) \\
 & = -x^2 - 3xy + 3y^2 + 8 + 3x^2 - 5y^2 - 3 + 4xy - 6xy + 2x^2 - 2 + y^2 \\
 & = -x^2 + 3x^2 + 2x^2 - 3xy + 4xy - 6xy + 3y^2 - 5y^2 + y^2 + 8 - 3 - 2 \\
 & = 4x^2 - 5xy - y^2 + 3
 \end{aligned}$$

$$\begin{aligned}
 & (ii) \quad a^3 - 2b^3 + a, b^3 - 2a^3 + b \text{ and } -2b + 2b^3 - 5a + 4a^3 \\
 & = (a^3, -2a^3, 4a^3), (-2b^3, b^3, 2b^3), (a, -5a), \\
 & \quad (b, -2b) \\
 & = a^3 - 2b^3 + a + b^3 - 2a^3 + b - 2b + 2b^3 - 5a + 4a^3 \\
 & = a^3 - 2a^3 + 4a^3 - 2b^3 + b^3 + 2b^3 + a - 5a + b - 2b \\
 & = 3a^3 + 1b^3 - 4a - b
 \end{aligned}$$

$$\begin{aligned}
 & 3 \cdot (i) \quad 3a - (a + 2b) \\
 & = 3a - a - 2b \\
 & = 2a - 2b
 \end{aligned}$$

$$\begin{aligned}
 & (ii) \quad (5x - 3y) - (x + y) \\
 & = 5x - 3y - x - y \\
 & = 5x - x - 3y - y \\
 & = 4x - 4y
 \end{aligned}$$

$$\begin{aligned}
 & (iii) \quad (8a + 15b) - (3b - 7a) \\
 & = 8a + 15b - 3b + 7a \\
 & = 8a + 7a + 15b - 3b \\
 & = 15a + 12b
 \end{aligned}$$

$$\begin{aligned}
 & (iv) \quad (8x + 7y) - (4y - 3x) \\
 & = 8x + 7y - 4y + 3x \\
 & = 8x + 3x + 7y - 4y \\
 & = 11x + 3y
 \end{aligned}$$

$$\begin{aligned}
 & (v) \quad 7 - (4a - 5) \\
 & = 7 - 4a + 5 \\
 & = 12 - 4a
 \end{aligned}$$

$$\begin{aligned}
 & (vi) \quad (6y - 13) - (4 - 7y) \\
 & = 6y - 13 - 4 + 7y \\
 & = 6y + 7y - 13 - 4 \\
 & = 13y - 17
 \end{aligned}$$

19(B)

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

Ans- $(a - 4b - 2c) - (5a - 3b + 2c)$
 $= a - 4b - 2c - 5a + 3b - 2c$
 $= a - 5a - 4b + 3b - 2c - 2c$
 $= -4a - 1b - 4c$.

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

Ans- $(12x + 7y - 21z) - (4x - 6y + 3z)$
 $= 12x + 7y - 21z - 4x + 6y - 3z$
 $= 12x - 4x + 7y + 6y - 21z - 3z$
 $= 8x + 13y - 24z$

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

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

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

Ans- $(x - y - z) - (-8x - 12y + 17z)$
 $= x - y - z + 8x + 12y - 17z$
 $= x + 8x + 12y - y - z - 17z$
 $= 9x + 11y - 18z$.

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

Ans- $(ab - 2cd + 2ac + bd) - (2ab + cd - ac - 2bd)$
 $= ab - 2cd + 2ac + bd - 2ab - cd + ac + 2bd$
 $= ab - 2ab - 2cd - cd + 2ac + ac + bd + 2bd$
 $= -ab - 3cd + 3ac + 3bd$

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

$= bc - ca + ab + ab - bc + ca$
 $= bc - bc - ca + ca + ab + ab$
 $= 2ab$

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

$= 3x + 5y - 4z - 5x - 6y + 3z$
 $= 3x - 5x + 5y - 6y - 4z + 3z$
 $= -2x - y - z$

Hw: Ex (19 B)

$$\begin{aligned}
 \text{(iii)} \quad & \left(\frac{1}{2}p - \frac{1}{3}q - \frac{3}{2}r\right) - \left(\frac{3}{2}p + q - r\right) \\
 &= \frac{1}{2}p - \frac{1}{3}q - \frac{3}{2}r + \frac{3}{2}p - q + r \\
 &= \frac{1}{2}p + \frac{3}{2}p - \frac{1}{3}q - q - \frac{3}{2}r + r \\
 &= \underline{3p + 9p - 2q - 6q - 9r + 6r}
 \end{aligned}$$

$$= \frac{12p}{6} - \frac{8q}{6} - \frac{3r}{6} = 2p - \frac{4}{3}q - \frac{1}{2}r$$

$$\text{(iv)} \quad (a^2 + a + 1) - (1 - a + a^2)$$

$$\begin{aligned}
 &= a^2 + a + 1 - 1 + a - a^2 \\
 &= a^2 - a^2 + a + a + 1 - 1 = 2a
 \end{aligned}$$

$$6. \text{ Ans} - (x + y - 2z) + (2x - y + z) - (x + y + z)$$

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

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

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

$$7. \text{ Ans} - (3a - 2b + 4c) + (3b - 2c) - (a - b - c)$$

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

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

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

$$8. \text{ Ans} - (3x - y + z) + (x + y - 3z) - (x - 2y - z)$$

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

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

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

$$9. \text{ Ans} - (x - 2z) + (x + y + z) - \{(x + y) + (x - z)\}$$

$$= x - 2z + x + y + z - \{x + y + x - z\}$$

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

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

$$= 0$$