

EX-19(B)

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

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

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

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

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

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

$$\begin{aligned} i) & 3a + 4b + 7c \\ & - 5a + 3b - 6c \\ & + 4a - 2b - 4c \\ \hline & 2a + 5b - 3c \end{aligned}$$

$$\begin{aligned} ii) & 2x^2 + xy - y^2 \\ & - x^2 + 2xy + 3y^2 \\ & + 3x^2 - 10xy + 4y^2 \\ \hline & 4x^2 - 7xy + 6y^2 \end{aligned}$$

$$\begin{aligned} iii) & x^2 - xt + 1 \\ & - 5x^2 + 2x - 2 \\ & + 3x^2 - 3xt + 1 \\ \hline & -x^2 - 2x \end{aligned}$$

$$\begin{aligned} iv) & a^2 - ab + bc \\ & - 2a^2 + 2ab + bc \\ & + 3a^2 + ab - 3bc \\ \hline & 2a^2 + 2ab - bc \end{aligned}$$

$$\begin{array}{r}
 v) \quad 4x^2 + 7 - 3x \\
 - x^2 + 8 + 4x \\
 + -2x^2 - 10 + 5x \\
 \hline
 x^2 + 5 + 6x
 \end{array}$$

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

$$\begin{array}{r}
 2) i) \quad -17x^2 - 2xy + 23y^2 \\
 15x^2 + 7xy - 9y^2 \\
 + 13x^2 - 4xy + 3y^2 \\
 \hline
 11x^2 + xy + 17y^2
 \end{array}$$

$$\begin{array}{r}
 ii) \quad -x^2 - 3xy + 3y^2 + 8 \\
 3x^2 + 4xy - 5y^2 - 3 \\
 + 2x^2 - 6xy + y^2 - 2 \\
 \hline
 4x^2 - 5xy - y^2 + 3
 \end{array}$$

$$\begin{array}{r}
 iii) \quad a^3 - 2b^3 + a \\
 - 2a^3 + b^3 + b \\
 + 4a^3 + 7b^3 - 5a - 2b \\
 \hline
 3a^3 + b^3 - 4a - b
 \end{array}$$

$$\begin{array}{r}
 4) i) \quad (a - 4b - 2c) - (5a - 3b + 2c) \\
 = a - 4b - 2c - 5a + 3b - 2c \\
 = a - 5a - 4b + 3b - 2c - 2c \\
 = -4a - b - 4c
 \end{array}$$

$$\begin{array}{r}
 ii) \quad (12x + 7y - 2z) - (4x - 6y + 3z) \\
 = 12x + 7y - 2z - 4x + 6y - 3z \\
 = 12x - 4x + 7y + 6y - 2z - 3z \\
 = 8x + 13y - 5z
 \end{array}$$

$$\begin{array}{r}
 iii) \quad (5a - 7b + 2c) - (5a - 4b + 4c) \\
 = 5a - 7b + 2c - 5a + 4b - 4c \\
 = 5a - 5a - 7b + 4b + 2c - 4c \\
 = -3b - 2c
 \end{array}$$

$$\begin{array}{r}
 iv) \quad (x - y - z) - (-8x - 12y + 17z) \\
 = x - y - z + 8x + 12y - 17z \\
 = x + 8x - y + 12y - z - 17z \\
 = 9x + 11y - 18z
 \end{array}$$

$$\begin{array}{r}
 v) \quad (ab - 2cd + 2ac + bd) - (2ab + cd - ac - 2bd) \\
 = ab - 2cd + 2ac + bd - 2ab - cd + ac + 2bd \\
 = ab - 2ab - 2cd - cd + 2ac + ac + bd + 2bd \\
 = -ab - 3cd + 3ac + 3bd
 \end{array}$$

$$\begin{aligned}
 5) i) (bc - ca + ab) - (ab + bc - ca) \\
 &= bc - ca + ab + ab - bc + ca \\
 &= bc - bc - ca + ca + ab + ab \\
 &= 2ab
 \end{aligned}$$

$$\begin{aligned}
 ii) (3x + 5y - 4z) - (5x + 6y - 3z) \\
 &= 3x + 5y - 4z - 5x - 6y + 3z \\
 &= 3x - 5x + 5y - 6y - 4z + 3z \\
 &= -2x - y - z
 \end{aligned}$$

$$\begin{aligned}
 iii) \left(\frac{1}{2}p - \frac{1}{3}q - \frac{3}{8}r\right) - \left(-\frac{3}{2}p + q - r\right) \\
 &= \frac{1}{2}p - \frac{1}{3}q - \frac{3}{8}r + \frac{3}{2}p - q + r
 \end{aligned}$$

$$= \frac{1}{2}p + \frac{3}{2}p - \frac{1}{3}q - q - \frac{3}{8}r + r$$

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

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

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

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

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

$$= 2a$$

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

Subtract

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

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

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

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

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

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

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

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

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

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

$$= 0$$

HW

7) Sum

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

Subtraction

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

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

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

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

8) Sum

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

Subtraction

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

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

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

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