

Subtraction: Subtraction of unlike terms is not possible

example:

$$5a - 3b = 5a - 3b$$

use

Exercise 19(A)

i) Fill in the blanks:

ii)  $5+4 = \underline{9}$  and  $5x + 4x = \underline{9x}$

iii)  $12 + 18 = \underline{30}$  and  $12x^2y + 18x^2y = \underline{30x^2y}$

iv)  $7 + 16 = \underline{23}$  and  $7a + 16b = \underline{7a + 16b}$

v)  $4 + 5 = \underline{9}$  and  $x^2y + 3xy^2 = \underline{x^2y + 3xy^2}$

vi)  $7 - 4 = \underline{3}$  and  $7ab - 4ab = \underline{3ab}$

vii)  $12 - 5 = \underline{7}$  and  $12x - 5y = \underline{12x - 5y}$

viii)  $35 - 16 = \underline{29}$  and  $35ab - 16ba = \underline{35ab - 16ba}$

ix)  $28 - 13 = \underline{15}$  and  $28ax^2 - 13a^2x = \underline{28ax^2 - 13a^2x}$

2) Fill in the blanks:

i) The sum of  $-2$  and  $-5 = -7$  and the sum of  $-2x$  and

$$\underline{-5x = -7x}$$

ii) The sum of 8 and  $-3 = 5$  and the sum of

$$8ab \text{ and } -3ab = 5ab$$

iii) The sum of  $15x$  and  $-4y = -19$  and the sum of  $-15x$

$$\text{and } -4y = -15x - 4y.$$

$$iv) 15 + 8 + 3 = 26 \text{ and } 15x + 8y + 3x = 18x + 8y$$

$$v) 12 - 9 + 15 = 18 \text{ and } 12ab - 9ab + 15ba = 18ab$$

$$vi) 25 - 7 - 9 = 9 \text{ and } 25xy - 7xy - 9yx = 9xy$$

$$vii) -4 - 6 - 5 = -15 \text{ and } -4ax - 6ax - 5ay = -10ax - 5ay$$

3) Add:

$$i) 8xy + 3xy = 11xy$$

$$ii) 2xyz + xyz + 6xyz = (2+1+6)xyz = 9xyz$$

$$iii) 2a + 3a + 4b \\ = (2+3)a + 4b \\ = 5a + 4b$$

$$iv) 3x + 2y = 3x + 2y$$

$$v) 5m + 3n + 4p = 5m + 3n + 4p$$

$$vi) 6a + 3a + 9ab \\ = (6+3)a + 9ab = 9a + 9ab$$

$$\begin{aligned}
 \text{vi) } & 3p + 4q + 9q \\
 & = 3p + (4+9)q \\
 & = 3p + 13q
 \end{aligned}$$

$$\begin{aligned}
 \text{vii) } & 5ab + 4ba + 6b \\
 & = (5+4)ab + 6b \\
 & = 9ab + 6b
 \end{aligned}$$

$$\begin{aligned}
 \text{ix) } & 50pq + 30pq + 10pr \\
 & = (50+30)pq + 10pr \\
 & = 80pq + 10pr
 \end{aligned}$$

$$\begin{aligned}
 \text{x) } & (-2y) + (-y) + (-3y) \\
 & = -(2+1+3)y \\
 & = -6y
 \end{aligned}$$

$$\begin{aligned}
 \text{xi) } & (-3b) + (-b) \\
 & = -(3+1)b \\
 & = -4b
 \end{aligned}$$

$$\begin{aligned}
 \text{xii) } & 5b + (-4b) + (-10b) \\
 & = 5b - (4+10)b \\
 & = 5b - 14b = -9b
 \end{aligned}$$

$$\begin{aligned}
 \text{xiii) } & (-2c) + (-c) + (-5c) \\
 & = -(2+1+5)c = -8c
 \end{aligned}$$

cb Evaluate:

$$\begin{aligned}
 \text{i) } & 6a - a - 5a - 2a = 6a - (1+5+2)a \\
 & = 6a - 8a = -2a
 \end{aligned}$$

$$\begin{aligned} \text{ii) } 2b - 3b - b + 4b \\ = 2b + 4b - (3+1)b \\ = 6b - 4b = 2b \end{aligned}$$

$$\begin{aligned} \text{iii) } 3x - 2x - 4x + 7x \\ = 3x + 7x + 2x - 4x \\ = (3+7)x - (2+4)x \\ = 10x - 6x = 4x \end{aligned}$$

$$\begin{aligned} \text{iv) } 5ab + 2ab - 6ab + ab \\ = 5ab + 2ab + ab - 6ab \\ = 8ab - 6ab = 2ab \end{aligned}$$

$$\begin{aligned} \text{v) } 8x - 5y - 3x + 10y \\ = 8x - 3x + 10y - 5y \\ = 5x + 5y \end{aligned}$$

5) Evaluate:

$$\begin{aligned} \text{i) } -7x + 9x + 2x - 2x \\ = 9x + 2x - 7x - 2x \\ = 11x - 9x = 2x \end{aligned}$$

$$\begin{aligned} \text{ii) } 5ab - 2ab - 8ab + 6ab \\ = 5ab + 6ab - 2ab - 8ab \\ = 11ab - 10ab = ab \end{aligned}$$

$$\begin{aligned} \text{iii) } -8a - 3a + 12a + 13a - 6a \\ = 12a + 13a - (8a + 3a + 6a) \\ = 25a - 17a = 8a \end{aligned}$$

$$\begin{aligned} \text{iv) } 19abc - 11abc - 12abc + 14abc \\ = abc(19 - 11 - 12 + 14) \\ = abc(33 - 23) = 10abc \end{aligned}$$

$$\begin{aligned}
 \text{2b) } 2a^2b^2 + 5ab^2 + 8a^2ba &= 3ab^2 \\
 &= 2a^2b^2 + 8a^2b^2 + 5ab^2 \cdot 3ab^2 \\
 &= 10a^2b^2 + 2ab^2
 \end{aligned}$$

$$\begin{aligned}
 \text{iii) } 4a + 3b - 2a - b \\
 = 4a - 2a + 3b - b \\
 = 2a + 2b
 \end{aligned}$$

$$\begin{aligned}
 \text{ii) } 2xy + 4yx + 5xy + 3yz - 6xy \\
 = 2xy + 5xy - 6xy + 4yz + 3yz \\
 = 7xy - 6xy + 7yz \\
 = x + 7yz
 \end{aligned}$$

$$\begin{aligned}
 \text{iv) } ab + 15ab - 11ab - 2ab \\
 = 18ab - 13ab = 5ab
 \end{aligned}$$

$$\begin{aligned}
 \text{v) } 6a^2 - 3b^2 + 2a^2 + 5b^2 - 4a^2 \\
 = 4a^2 + 2b^2
 \end{aligned}$$

$$\begin{aligned}
 \text{vi) } 8abc + 2ab - 4abc + ab \\
 = 4abc + 3ab
 \end{aligned}$$

vii)  $9xy + 4xz$

$$P_{xy} = 2xy^2 + 5x^2y - 3xy^2$$

$$P_{yx} = 2xy^2 + 11x^2y - 3xy^2$$

$$= 2a + 5b + 7c - 10$$

$$= \underline{2a + 5b - 3c}$$

Column method

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

Add :

$$\underline{2 + 3 + 5}$$

$$2 + 3 + 3$$

$$4a + 2b +$$

$$3a - 3b + c$$

Ex 19(A)

Q. i)  $4ab, 6ba$

ii)  $4 \cdot 8b, 6 \cdot 8b$

iii)  $3 \cdot 5abc, 10 \cdot 5abc$

iv)  $3\frac{1}{2} \text{ mm}, 8\frac{1}{2} \text{ mm}$

Sol :- i)  $6ba - 4ab = 2ab$

ii)  $6 \cdot 8b - 4 \cdot 8b = 2b$

iii)  $10 \cdot 5abc - 3 \cdot 5abc = 7abc$

iv)  $8\frac{1}{2} \text{ mm} - 3\frac{1}{2} \text{ mm}$

$$= \frac{17 \text{ mm}}{2} - \frac{7 \text{ mm}}{2}$$

$$= \frac{17 \text{ mm} - 7 \text{ mm}}{2} = \frac{10 \text{ mm}}{2} = 5 \text{ mm}$$