

Exercise - 19(A)

1. i) $5+4=9$ and $5x+4x=9x$

ii) $12+18=30$ and $12x^2y+18x^2y=30x^2y$

iii) $7+16=23$ and $7a+16b=7a+16b$

iv) $1+3=4$ and $x^2y+3xy^2=x^2y+3xy^2$

v) $7-4=3$ and $7ab-4ab=3ab$

vi) $12-5=7$ and $12x-5y=12x-5y$

vii) $35-16=19$ and $35ab-16a=19ab$

viii) $28-13=15$ and $28ax^2-13a^2x=28ax^2-13a^2x$

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

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

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

iv) $15+8+3 = 26$ and $15x+8y+3x = 18x+8y$

v) $12-9+5 = 18$ and $12ab-9ab+5ba = 18ab$

vi) $25-7-9 = 9$ and $25xy-7xy-9yx = 9xy$

vii) $-4-6-5 = -15$ and $-4ax-6ax-5ay = -10ax-5ay$

3) i) $8xy$ and $3xy$

$$= 8xy + 3xy = (8+3)xy = 11xy.$$

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

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

vii) $3p + 4q + 9q$
 $= 3p + (4+9)q$
 $= 3p + 13q$

viii) $5ab + 4ba + 6b$
 $= (5+4)ab + 6b$
 $= 9ab + 6b$

ix) $50pq + 30pq + 10pr$
 $= (50+30)pq + 10pr$
 $= 80pq + 10pr$

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

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

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

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

$$\begin{aligned} \text{4) i)} & 6a - a - 5a - 2a \\ & = (6-1-5-2)a \\ & = (6-8)a \\ & = -2a \end{aligned}$$

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

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

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

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

$$\begin{aligned}
 5) \quad i) & -7x + 9x + 2x - 2x \\
 & = (-7 + 9 + 2 - 2)x \\
 & = (9 + 2 - 7 - 2)x \\
 & = (11 - 9)x \\
 & = 2x
 \end{aligned}$$

$$\begin{aligned}
 ii) & 5ab - 2ab - 8ab + 6ab \\
 & = (5 - 2 - 8 + 6)ab \\
 & = (5 + 6 - 2 - 8)ab \\
 & = (11 - 10)ab \\
 & = 1 \times ab = ab
 \end{aligned}$$

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

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

$$\begin{aligned}
 6) \quad i) & 6ba - 4ab \\
 & = (6 - 4)ab \\
 & = 2ab
 \end{aligned}$$

$$\begin{aligned}
 ii) & 6 \cdot 8b - 4 \cdot 8b \\
 & = (6 \cdot 8 - 4 \cdot 8)b \\
 & = 2b
 \end{aligned}$$

$$\begin{aligned}
 iii) & 10 \cdot 5abc - 3 \cdot 5abc \\
 & = (10 \cdot 5 - 3 \cdot 5)abc \\
 & = 7abc
 \end{aligned}$$

$$\begin{aligned}
 iv) & 8\frac{1}{2}mn - 3\frac{1}{2}mn \\
 & = (8\frac{1}{2} - 3\frac{1}{2})mn \\
 & = (\frac{17}{2} - \frac{7}{2})mn
 \end{aligned}$$

$$= (\frac{17 - 7}{2})mn$$