

Su
Monday

Chapter → 19

Fundamental Operations

Ex. 19

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2) Fill in the blanks:

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

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

iii) The sum of 8 and $-3 = 5$

the sum of $8ab$ and $-3ab = 5ab$

iv) The sum of -15 and $-4 = -19$

the sum of $-15x$ and $-4y = -15x + (-4y)$

v) $15 + 8 + 3 = 26$

$15x + 8y + 3x = 18x + 8y$

vi) $12 - 9 + 15 = 18$

$18ab$

vii) 9 and $9xy$

viii) -15 and $-10ax - 5ey$

3) Add:

i) $8xy$ and $3xy$

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Ans $\rightarrow 8xy + 3xy$
 $= (8 + 3)xy$
 $= 11xy$
 $= 11xy$

ii) $2xyz + xyz + 6xyz$

Ans $\rightarrow 2xyz + xyz + 6xyz$
 $= (2 + 1 + 6)xyz = 9xyz$

iii) $2a, 3a$ and $4b$

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

iv) $3x$ and $2y$

Ans $\rightarrow 3x + 2y$

v) $5m, 3n$ and $4p$

Ans $\rightarrow 5m + 3n + 4p$

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vi) $6a, 3a$ and $9ab$

$$\begin{aligned} \text{Ans} \rightarrow & 6a + 3a + 9ab \\ & = (6a + 3a) + 9ab \\ & = (6+3)a + 9ab \\ & = 9a + 9ab \end{aligned}$$

vii) $3p, 4q, 9q$

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

viii) $5ab, 4ba$ and $6b$

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

ix) $50pq, 30pq, 10pr$

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$$\begin{aligned}\text{Ans} \rightarrow & 50pq + 30pq + 10prz \\ & = 50pq + 30pq + 10prz \\ & = (50+30)pq + 10prz \\ & = 80pq + 10prz\end{aligned}$$

x) $-2y, -y$ and $-3y$

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

xi) $-3b$ and $-b$

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

xii) $5b, -4b$ and $-10b$

$$\begin{aligned}\text{Ans} \rightarrow & 5b + -4b + -10b \\ & = [5 + (-4) + (-10)]b \\ & = -9b\end{aligned}$$

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xiii) $-2c, -c$ and $-5c$

Ans $\rightarrow -2c - c - 5c$

$$= (-2 - 1 - 5)c$$

$$= -8c$$

4) Evaluate

i) $6a - a - 5a - 2a$

Ans $\rightarrow = (6 - 1 - 5 - 2)a$

$$= -2a$$

ii) $2b - 3b - b + 4b$

Ans $\rightarrow = (2 - 3 - 1 + 4)b$

$$= 2b$$

iii) $3x - 2x - 4x + 7x$

Ans $\rightarrow = (3 - 2 - 4 + 7)x$

$$= 4x$$

iv) $5ab + 2ab - 6ab + ab$

Ans $\rightarrow = (5 + 2 - 6 + 1)ab$

$$= 2ab$$

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$$4) 8x - 5y - 3x + 10y$$

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

5) Evaluate:

$$i) -7x + 9x + 2x - 2x$$

$$\begin{aligned} \text{Ans} \rightarrow & = (-7 + 9 + 2 - 2)x \\ & = 2x \end{aligned}$$

$$ii) 5ab - 2ab - 8ab + 6ab$$

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

$$iii) -8a - 3a + 12a + 13a - 6a$$

$$\begin{aligned} \text{Ans} \rightarrow & = (-8 - 3 + 12 + 13 - 6)a \\ & = 8a \end{aligned}$$

$$iv) 19abc - 11abc - 12abc + 14abc$$

$$\begin{aligned} \text{Ans} \rightarrow & = (19 - 11 - 12 + 14)abc \\ & = 10abc \end{aligned}$$

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6) Subtract the first term from the second
i) $4ab, 6ba$

$$\begin{aligned} \text{Ans} \rightarrow & 4ab - 6ba \\ & = (6-4)ab \\ & = 2ab \end{aligned}$$

ii) $4.8b, 6.8b$

$$\begin{aligned} \text{Ans} \rightarrow & 6.8b - 4.8b \\ & = (6.8 - 4.8)b \\ & = 2b \end{aligned}$$

iii) $3.5abc, 10.5abc$

$$\begin{aligned} \text{Ans} \rightarrow & 10.5abc - 3.5abc \\ & = (10.5 - 3.5)abc \\ & = 7abc \end{aligned}$$

iv) $3\frac{1}{2}mn, 8\frac{1}{2}nm$

$$\begin{aligned} \text{Ans} \rightarrow & 8\frac{1}{2}nm - 3\frac{1}{2}mn \\ & = \left(8\frac{1}{2} - 3\frac{1}{2}\right)mn \\ & = 5mn \end{aligned}$$

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7) Simplify

i) $2a^2b^2 + 5ab^2 + 8a^2b^2 - 3ab^2$

Ans $\rightarrow (2a^2b^2 + 8a^2b^2) + (5ab^2 - 3ab^2)$
 $= 10a^2b^2 + 2ab^2$

ii) $(4a - 2a) + (3b - b)$
 $= 2a + 2b$

iii) $(2xy + 5xy - 6xy) + (4yz + 3yz)$
 $= 1xy + 7yz$

iv) $(ab + 15ab - 11ab - 2ab)$
 $= 3ab$

v) $(6a^2 + 2a^2 - 4a^2) + (5b^2 - 3b^2)$
 $= 2a^2 + 2b^2$

vi) $8abc + 2ab - 4abc + ab$

Ans $\rightarrow (8abc - 4abc) + (2ab + ab)$
 $= 4abc + 3abc$

vii) $9xyz + 15xyz - 10zyx - 2zxy$

Ans $\rightarrow (9 + 15 - 10 - 2)xyz$

$= 12xyz$

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vii) $13pq, r + 2p + 4q - 6pq, r + 5pq, r$

Ans $\rightarrow (13 - 6 + 5) pq, r + 2p + 4q$
 $= 12 pq, r + 2p + 4q$

ix) $4ab + 0 - 2ba$

Ans $\rightarrow (4 - 2) ab + 0$
 $= 2ab$

x) $6x^2y - 2xy^2 + 5x^2y - xy^2$

Ans $\rightarrow (6 + 5) x^2y + (-2xy^2 - xy^2)$
 $= 11x^2y - 3xy^2$

~~Sum~~