

UNIT 5

SIMPLIFICATIONS

EXERCISE NO. 5.1

Q.1 Simplify the following:

(i) $\frac{1}{5} - \left\{ \frac{2}{5} \div \frac{4}{15} \times \frac{1}{2} - \left(\frac{1}{2} + \frac{2}{5} \right) \right\}$

Solution:

$$\begin{aligned} & \frac{1}{5} - \left\{ \frac{2}{5} \div \frac{4}{15} \times \frac{1}{2} - \left(\frac{1}{2} + \frac{2}{5} \right) \right\} \\ &= \frac{1}{5} - \left\{ \frac{2}{5} \div \frac{4 \times 1}{15 \times 2} - \left(\frac{5+4}{10} \right) \right\} \\ &= \frac{1}{5} - \left\{ \frac{2}{5} \div \frac{4}{30} - \frac{9}{10} \right\} \\ &= \frac{1}{5} - \left\{ \frac{2}{5} \times \frac{30}{4} - \frac{9}{10} \right\} \\ &= \frac{1}{5} - \left\{ \frac{6}{2} - \frac{9}{10} \right\} \\ &= \frac{1}{5} - \left\{ \frac{30-9}{10} \right\} \\ &= \frac{1}{5} - \frac{21}{10} \\ &= \frac{2-21}{10} \\ &= \frac{-19}{10} \\ &= -1 \frac{9}{10} \quad \text{Ans} \end{aligned}$$

Q.2 $\frac{3}{4} + \left(\frac{4}{3} - \frac{1}{2} + \frac{2}{3} + \frac{4}{5} \right)$

Solution:

$$\frac{3}{4} + \left(\frac{4}{3} - \frac{1}{2} + \frac{2}{3} + \frac{4}{5} \right)$$

$$= \frac{3}{4} + \left(\frac{4}{3} - \frac{3+4}{6} + \frac{4}{5} \right)$$

$$= \frac{3}{4} + \left(\frac{4}{3} - \frac{7}{6} + \frac{4}{5} \right)$$

$$= \frac{3}{4} + \left(\frac{4}{3} - \frac{7}{6} + \frac{4}{5} \right)$$

$$= \frac{3}{4} + \left(\frac{8-7}{6} + \frac{4}{5} \right)$$

$$= \frac{3}{4} + \left(\frac{1}{6} + \frac{4}{5} \right)$$

$$= \frac{3}{4} + \left(\frac{1}{6} + \frac{4}{5} \right)$$

$$= \frac{3}{4} + \left(\frac{5+24}{30} \right)$$

$$= \frac{3}{4} + \frac{29}{30}$$

$$= \frac{45+58}{60}$$

$$= \frac{103}{60} \quad \begin{array}{r} 1 \\ 60 \overline{)103} \\ \underline{60} \\ 43 \end{array}$$

$$= 1 \frac{43}{60} \text{ Ans:}$$

Q.3 $\frac{7}{8} + \left\{ \frac{5}{7} + \left(\frac{1}{2} + \frac{1}{3} \right) \div \frac{5}{6} \right\}$

Solution:

$$\frac{7}{8} + \left\{ \frac{5}{7} + \left(\frac{1}{2} + \frac{1}{3} \right) \div \frac{5}{6} \right\}$$

$$= \frac{7}{8} + \left\{ \frac{5}{7} + \left(\frac{1}{2} + \frac{1}{3} \right) \div \frac{5}{6} \right\}$$

$$= \frac{7}{8} + \left\{ \frac{5}{7} + \left(\frac{3+2}{6} \right) \div \frac{5}{6} \right\}$$

$$= \frac{7}{8} + \left\{ \frac{5}{7} + \frac{5}{6} \div \frac{5}{6} \right\}$$

$$= \frac{7}{8} + \left\{ \frac{5}{7} + \frac{5}{6} \times \frac{6}{5} \right\}$$

$$= \frac{7}{8} + \left\{ \frac{5}{7} + 1 \right\}$$

$$= \frac{7}{8} + \left\{ \frac{5+7}{7} \right\}$$

$$= \frac{7}{8} + \frac{12}{7}$$

$$= \frac{49+96}{56} = \frac{145}{56}$$

$$= \frac{145}{56} = 2 \frac{33}{56}$$

$$= 2 \frac{33}{56} \text{ Ans}$$

$$\begin{array}{r} 2 \\ 56 \overline{)145} \\ \underline{112} \\ 33 \\ = 2 \frac{33}{56} \end{array}$$

Q.4 $\frac{5}{2} \times \left(\frac{5}{6} - \frac{2}{3} \right) \div \frac{2}{5} \times \left(\frac{3}{5} + \frac{6}{25} \right)$

Solution:

$$\frac{5}{2} \times \left(\frac{5}{6} - \frac{2}{3} \right) \div \frac{2}{5} \times \left(\frac{3}{5} + \frac{6}{25} \right)$$

$$\frac{5}{2} \times \left(\frac{5}{6} - \frac{2}{3} \right) \div \frac{2}{5} \times \left(\frac{15+6}{25} \right)$$

For Class VI

$$\frac{5}{2} \times \left(\frac{5}{6} - \frac{2}{3} \right) \div \frac{2}{5} \times \left(\frac{21}{25} \right)$$

$$\frac{5}{2} \times \left(\frac{5-4}{6} \right) \div \frac{2}{5} \times \left(\frac{21}{25} \right)$$

$$\frac{5}{2} \times \left(\frac{1}{6} \right) \div \frac{2}{5} \times \left(\frac{21}{25} \right)$$

$$\frac{5}{2} \times \left(\frac{1}{6} \times \frac{5}{2} \right) \times \frac{21}{25}$$

$$\frac{5}{2} \times \frac{5}{12} \times \frac{21}{25} = \frac{7}{8}$$

$$= \frac{7}{8} \text{ Ans}$$

Q.5 $\left(\frac{2}{3} - \frac{3}{4} \times \frac{1}{8} \right) \div \left(\frac{2}{3} - \frac{3}{4} + \frac{5}{8} \right)$

Solution:

$$\left(\frac{2}{3} - \frac{3}{4} \times \frac{1}{8} \right) \div \left(\frac{2}{3} - \frac{3}{4} + \frac{5}{8} \right)$$

$$= \left(\frac{2}{3} - \frac{3}{4} \times \frac{1}{8} \right) \div \left(\frac{2}{3} - \frac{6+5}{8} \right)$$

$$= \left(\frac{2}{3} - \frac{3}{4} \times \frac{1}{8} \right) \div \left(\frac{2}{3} - \frac{11}{8} \right)$$

$$= \left(\frac{8-9}{12} \times \frac{1}{8} \right) \div \left(\frac{2}{3} - \frac{11}{8} \right)$$

$$= \left(\frac{1}{12} \times \frac{1}{8} \right) \div \left(\frac{16-33}{24} \right)$$

$$= \frac{1}{12} \times \frac{1}{8} \div \frac{17}{24}$$

$$= \frac{1}{12} \times \frac{1}{8} \times \frac{24}{17} = \frac{1}{68}$$

$$= \frac{1}{68} \text{ Ans:}$$

$$Q.6 \quad 1\frac{1}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \left(\frac{4}{5} - \frac{1}{10} + \frac{3}{5} \right) \right\} \right]$$

Solution:

$$1\frac{1}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \left(\frac{4}{5} - \frac{1}{10} + \frac{3}{5} \right) \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \left(\frac{4}{5} - \frac{1}{10} + \frac{3}{5} \right) \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \left(\frac{4}{5} - \frac{1}{10} + \frac{3}{5} \right) \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \left(\frac{4}{5} - \frac{10+6}{10} \right) \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \left(\frac{4}{5} - \frac{16}{10} \right) \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \left(\frac{8+16}{10} \right) \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \div \frac{8}{10} \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{5} \times \frac{10}{8} \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \left\{ \frac{2}{4} \right\} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \div \frac{4}{2} \right]$$

$$= \frac{3}{2} + \left[\frac{1}{3} \times \frac{4}{2} \right]$$

$$= \frac{3}{2} + \frac{4}{6}$$

$$= \frac{9+4}{6} = \frac{13}{6} = 2\frac{1}{6}$$

$$= 2\frac{1}{6} \text{ Ans}$$

$$= \frac{13}{6}$$

$$\frac{2}{6} \overline{)13}$$

$$\frac{12}{6}$$

$$\frac{1}{6}$$

$$= 2\frac{1}{6}$$

Q.7 $\left[\frac{1}{2} + \left\{ \left(\frac{3}{4} \div \frac{1}{16} \right) \times 1\frac{1}{2} \right\} - 2\frac{1}{4} \right]$

Solution:

$$\begin{aligned} & \left[\frac{1}{2} + \left\{ \left(\frac{3}{4} \div \frac{1}{16} \right) \times 1\frac{1}{2} \right\} - 2\frac{1}{4} \right] \\ &= \left[\frac{1}{2} + \left\{ \left(\frac{3}{4} \div \frac{9}{16} \right) \times \frac{3}{2} \right\} - \frac{9}{4} \right] \\ &= \left[\frac{1}{2} + \left\{ \left(\frac{3}{4} \times \frac{16}{9} \right) \times \frac{3}{2} \right\} - \frac{9}{4} \right] \\ &= \left[\frac{1}{2} + \left\{ \frac{4}{3} \times \frac{3}{2} \right\} - \frac{9}{4} \right] \\ &= \left[\frac{1}{2} + \left\{ \frac{2}{1} \right\} - \frac{9}{4} \right] \\ &= \frac{1}{2} + \left[\frac{2}{1} - \frac{9}{4} \right] \\ &= \left[\frac{1}{2} + \left\{ \frac{8-9}{4} \right\} \right] \\ &= \frac{1}{2} - \frac{1}{4} \\ &= \frac{2-1}{4} \\ &= \frac{1}{4} \quad \text{Ans} \end{aligned}$$

Q.8 $3\frac{1}{2} + \left\{ \left(10\frac{2}{5} - 5\frac{1}{3} \right) \div 3\frac{2}{3} \right\} - 1\frac{1}{5}$

Solution:

$$\begin{aligned} & 3\frac{1}{2} + \left\{ \left(10\frac{2}{5} - 5\frac{1}{3} \right) \div 3\frac{2}{3} \right\} - 1\frac{1}{5} \\ &= \frac{7}{2} + \left\{ \left(\frac{52}{5} - \frac{16}{3} \right) \div \frac{11}{3} \right\} - \frac{6}{5} \end{aligned}$$

$$\begin{aligned}
 &= \frac{7}{2} + \left\{ \left(\frac{156-80}{15} \right) \div \frac{11}{3} \right\} - \frac{6}{5} \\
 &= \frac{7}{2} + \left\{ \left(\frac{76}{15} \right) \times \frac{3}{11} \right\} - \frac{6}{5} \\
 &= \frac{7}{2} + \left\{ \frac{76}{15} \times \frac{1}{11} \right\} - \frac{6}{5} \\
 &= \frac{7}{2} + \left\{ \frac{76}{55} - \frac{6}{5} \right\} \\
 &= \frac{7}{2} + \left\{ \frac{76-66}{55} \right\} \\
 &= \frac{7}{2} + \frac{10}{55} \\
 &= \frac{385+20}{110} = \frac{405}{110} \\
 &= \frac{405}{110} = \frac{81}{22} \\
 &= 3 \frac{15}{22} \text{ Ans:}
 \end{aligned}$$

$$\begin{array}{r}
 3 \\
 22 \overline{)81} \\
 \underline{66} \\
 15 \\
 = 3 \frac{15}{22}
 \end{array}$$

Q.9 $\left[\left(2\frac{3}{4} + 1\frac{2}{6} \right) \times \left(1\frac{1}{5} \div \frac{2}{5} \right) \right]$

Solution:

$$\begin{aligned}
 &\left[\left(2\frac{3}{4} + 1\frac{2}{6} \right) \times \left(1\frac{1}{5} \div \frac{2}{5} \right) \right] \\
 &= \left[\left(\frac{11}{4} + \frac{8}{6} \right) \times \left(\frac{6}{5} \div \frac{2}{5} \right) \right] \\
 &= \left[\left(\frac{33+16}{12} \right) \times \left(\frac{6}{5} \div \frac{2}{5} \right) \right] \\
 &= \left[\left(\frac{49}{12} \right) \times \left(\frac{6}{5} \div \frac{2}{5} \right) \right] \\
 &= \left[\left(\frac{49}{12} \right) \times \left(\frac{6}{5} \times \frac{5}{2} \right) \right] \\
 &= \left[\frac{49}{12} \right] \times \left(\frac{6}{5} \times \frac{5}{2} \right)
 \end{aligned}$$

$$\begin{aligned}
 &= \left[\frac{49}{12} \times \frac{3}{1} \right] \\
 &= \left[\frac{49}{4} \right] \\
 &= \frac{49}{4} \\
 &= 12 \frac{1}{4} \text{ Ans}
 \end{aligned}$$

$$\begin{array}{r}
 12 \\
 4 \overline{) 49} \\
 \underline{4} \\
 9 = 12 \frac{1}{4} \\
 \underline{8} \\
 1
 \end{array}$$

Q.10 $\left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \left(1 \frac{2}{3} \div \frac{1}{9} \right) \right\} - \left\{ \left(\frac{5}{3} - \frac{1}{6} \right) \div \frac{7}{6} \right\}$

Solution:

$$\begin{aligned}
 &\left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \left(1 \frac{2}{3} \div \frac{1}{9} \right) \right\} - \left\{ \left(\frac{5}{3} - \frac{1}{6} \right) \div \frac{7}{6} \right\} \\
 &= \left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \left(\frac{5}{3} \div \frac{1}{9} \right) \right\} - \left\{ \left(\frac{5}{3} - \frac{1}{6} \right) \div \frac{9}{6} \right\} \\
 &= \left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \left(\frac{5}{3} \div \frac{1}{9} \right) \right\} - \left\{ \left(\frac{10-1}{6} \right) \div \frac{9}{6} \right\} \\
 &= \left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \left(\frac{5}{3} \div \frac{1}{9} \right) \right\} - \left\{ \left(\frac{9}{6} \right) \div \frac{9}{6} \right\} \\
 &= \left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \left(\frac{5}{3} \times \frac{9}{1} \right) \right\} - \left\{ \frac{9}{6} \times \frac{16}{9} \right\} \\
 &= \left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \frac{15}{1} \right\} - \left\{ \frac{9}{6} \times \frac{16}{9} \right\} \\
 &= \left\{ \left(\frac{1}{2} - \frac{1}{3} \right) + \left(\frac{15}{1} \right) \right\} - \left\{ \frac{1}{1} \right\} \\
 &= \left\{ \left(\frac{3-2}{6} \right) + \left(\frac{15}{1} \right) \right\} \\
 &= \left\{ \frac{1}{6} + \left(\frac{15-1}{1} \right) \right\} \\
 &= \left\{ \frac{1}{6} + \left(\frac{15-1}{1} \right) \right\} \\
 &= \left\{ \frac{1}{6} + \frac{14}{1} \right\}
 \end{aligned}$$

$$\begin{array}{r}
 14 \\
 6 \overline{) 85} \\
 \underline{6} \\
 25 \\
 \underline{24} \\
 1
 \end{array}$$

$$= \left(\frac{1+14}{6} \right)$$

$$= \frac{85}{6} = 14 \frac{1}{6}$$

$$= 14 \frac{1}{6} \text{ Ans}$$

Q.11. $\left[2 \frac{1}{4} \times \left\{ 3 \frac{1}{3} - \frac{1}{2} + \left(\frac{5}{3} - \frac{1}{6} \right) \right\} \right] + \frac{5}{6}$

Solution:

$$\left[2 \frac{1}{4} \times \left\{ 3 \frac{1}{3} - \frac{1}{2} + \left(\frac{5}{3} - \frac{1}{6} \right) \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{10}{3} - \frac{1}{2} + \left(\frac{5}{3} - \frac{1}{6} \right) \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{10}{3} - \frac{1}{2} + \left(\frac{10-1}{6} \right) \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{10}{3} - \frac{1}{2} + \left(\frac{9}{6} \right) \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{10}{3} - \frac{1}{2} + \left(\frac{9}{6} \right) \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{20-3}{6} + \left(\frac{9}{6} \right) \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{17}{6} + \frac{9}{6} \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{17+9}{6} \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{26}{6} \right\} \right] + \frac{5}{6}$$

$$= \left[\frac{9}{4} \times \left\{ \frac{26+5}{6} \right\} \right] + \frac{5}{6}$$

$$= \frac{9}{4} \times \frac{31}{6} = \frac{93}{8}$$

$$= \frac{93}{8} = 11 \frac{5}{8} \text{ Ans}$$

$$\begin{array}{r} 11 \\ 8 \overline{)93} \\ \underline{8} \\ 13 \\ \underline{8} \\ 5 \end{array}$$

Q.12. $\left(3\frac{1}{2} \times \frac{16}{3} - 10\frac{2}{5}\right) \times \left(3\frac{1}{8} - 6\frac{1}{2} \div 2\frac{1}{6}\right)$

Solution:

$$\begin{aligned} & \left(3\frac{1}{2} \times \frac{16}{3} - 10\frac{2}{5}\right) \times \left(3\frac{1}{8} - 6\frac{1}{2} \div 2\frac{1}{6}\right) \\ &= \left(\frac{7}{2} \times \frac{16}{3} - \frac{52}{5}\right) \times \left(\frac{25}{8} - \frac{13}{2} \div \frac{13}{6}\right) \\ &= \left(\frac{7}{2} \times \frac{16}{3} - \frac{52}{5}\right) \times \left(\frac{25}{8} - \frac{13}{2} \div \frac{6}{13}\right) \\ &= \left(\frac{7}{2} \times \frac{16}{3} - \frac{52}{5}\right) \times \left(\frac{25}{8} - \frac{3}{1}\right) \\ &= \left(\frac{7}{2} \times \frac{16}{3} - \frac{52}{5}\right) \times \left(\frac{25-24}{8}\right) \\ &= \left(\frac{7}{2} \times \frac{16}{3} - \frac{52}{5}\right) \times \left(\frac{1}{8}\right) \\ &= \left(\frac{56}{3} - \frac{52}{5}\right) \times \left(\frac{1}{8}\right) \\ &= \left(\frac{280-156}{15}\right) \times \left(\frac{1}{8}\right) \\ &= \left(\frac{124}{15}\right) \times \left(\frac{1}{8}\right) \\ &= \frac{124}{15} \times \frac{1}{8} = \frac{31}{30} \\ &= \frac{31}{30} = 1\frac{1}{30} \\ &= 1\frac{1}{30} \text{ Ans} \end{aligned}$$

$$\begin{array}{r} 30 \overline{)31} \\ \underline{30} \\ 1 \end{array}$$

Q.13. $\left(2\frac{1}{5} \div 3\frac{2}{25}\right) \times 4\frac{2}{5} \div \left(3 - \frac{1}{5}\right)$

Solution:

$$\begin{aligned} & \left(2\frac{1}{5} \div 3\frac{2}{25}\right) \times 4\frac{2}{5} \div \left(3 - \frac{1}{5}\right) \\ &= \left(\frac{11}{5} \div \frac{77}{25}\right) \times \frac{22}{5} \div \left(3 - \frac{1}{5}\right) \end{aligned}$$

$$\begin{aligned}
 &= \left(\frac{11}{5} + \frac{77}{25} \right) \times \frac{22}{5} \div \left(\frac{3}{1} - \frac{1}{5} \right) \\
 &= \left(\frac{11}{5} + \frac{77}{25} \right) \times \frac{22}{5} \div \left(\frac{15-1}{5} \right) \\
 &= \left(\frac{11}{5} + \frac{77}{25} \right) \times \frac{22}{5} \div \left(\frac{14}{5} \right) \\
 &= \left(\frac{11}{5} \times \frac{25}{77} \right) \times \frac{22}{5} \div \left(\frac{14}{5} \right) \\
 &= \left(\frac{5}{7} \right) \times \frac{22}{5} \div \left(\frac{14}{5} \right) \\
 &= \frac{5}{7} \times \frac{22}{5} \div \left(\frac{14}{5} \right) \\
 &= \frac{22}{7} \div \frac{14}{5} \\
 &= \frac{22}{7} \times \frac{5}{14} = \frac{55}{49} \\
 &= \frac{55}{49} = 1 \frac{6}{49} \\
 &= 1 \frac{6}{49} \text{ Ans}
 \end{aligned}$$

$$\begin{array}{r}
 1 \\
 49 \overline{) 55} \\
 \underline{49} \\
 6
 \end{array}$$

Q.14 $4.02 \times \{1.2 \times 2.11 + 3.89\}$

Solution:

$$\begin{aligned}
 &4.02 \times \{1.2 \times 2.11 + 3.89\} \\
 &= 4.02 \times \{1.2 \times 6.00\} \\
 &= 4.02 \times \{7.2\} \\
 &= 4.02 \times 7.2 = 28.944 \quad \text{Ans}
 \end{aligned}$$

Q.15 $5.7 \times \{6.7 + (1.3 \times 7.2 \div 1.5 \times 2.4)\}$

Solution:

$$\begin{aligned}
 &5.7 \times \{6.7 + (1.3 \times 7.2 \div 1.5 \times 2.4)\} \\
 &= 5.7 \times \{6.7 + (1.3 \times 7.2 \div 3.6)\} \\
 &= 5.7 \times \{6.7 + (9.36 \div 3.6)\} \\
 &= 5.7 \times \{6.7 + (2.6)\} \\
 &= 5.7 \times \{6.7 + 2.6\} \\
 &= 5.7 \times 9.3 = 53.01 \quad \text{Ans:}
 \end{aligned}$$

Q.16 $4.093 + \{5.2 \times 1.5 + 2.4\}$

Solution:

$$\begin{aligned} & 4.093 + \{5.2 \times 1.5 + 2.4\} \\ &= 4.093 + \{5.2 \times 3.9\} \\ &= 4.093 + \{20.28\} \\ &= 4.093 + 20.28 \\ &= 24.373 \quad \text{Ans} \end{aligned}$$

Q.17 $0.3 \times 2.6 + \{3.7 - (1.2 \times 4.5 \div 1.5)\}$

Solution:

$$\begin{aligned} & 0.3 \times 2.6 + \{3.7 - (1.2 \times 4.5 \div 1.5)\} \\ &= 0.3 \times 2.6 + \{3.7 - (1.2 \times 3)\} \\ &= 0.3 \times 2.6 + \{3.7 - 3.6\} \\ &= 0.3 \times 2.6 + \{0.1\} \\ &= 0.78 + 0.1 \\ &= 0.88 \quad \text{Ans} \end{aligned}$$

Q.18 $\{3.41 - 1.05 + 1.5\} \times 3.5 \div 1.25$

Solution:

$$\begin{aligned} & \{3.41 - 1.05 + 1.5\} \times 3.5 \div 1.25 \\ &= \{(3.41 - 2.55) \times 3.5\} \div 1.25 \\ &= \{(0.86) \times 3.5\} \div 1.25 \\ &= \{3.01\} \div 1.25 \\ &= 3.01 \div 1.25 = 2.408 \\ &= 2.408 \quad \text{Ans} \end{aligned}$$

Q.19 $30.45 + [6.35 \times \{8.95 - (3.5 \div 0.7 \times 0.01)\}]$

Solution:

$$\begin{aligned} & 30.45 + [6.35 \times \{8.95 - (3.5 \div 0.7 \times 0.01)\}] \\ &= 30.45 + [6.35 \times \{8.95 - (3.5 \div 0.007)\}] \\ &= 30.45 + [6.35 \times \{8.95 - (0.002)\}] \\ &= 30.45 + [6.35 \times \{8.948\}] \\ &= 30.45 + [6.35 \times 8.948] \\ &= 30.45 + 56.515 = 86.965 \quad \text{Ans} \end{aligned}$$

Q.20. $2.297 + [0.2 \times \{9 \div 0.3\} - 0.09]$

Solution:

$$\begin{aligned} & 2.297 + [0.2 \times \{9 \div 0.3\} - 0.09] \\ &= 2.297 + [0.2 \times \{0.3\} - 0.09] \\ &= 2.297 + [\{6\} - 0.09] \\ &= 2.297 + 5.91 \\ &= 8.207 \quad \text{Ans} \end{aligned}$$

Q.21. $\{(2.5 - 2) + 1.5\} \times 0.5 - 0.5$

Solution:

$$\begin{aligned} & \{(2.5 - 2) + 1.5\} \times 0.5 - 0.5 \\ &= \{0.5 + 1.5\} \times 0.5 - 0.05 \\ &= 2 \times 0.5 - 0.05 \\ &= 1 - 0.05 \\ &= 0.95 \quad \text{Ans} \end{aligned}$$

Q.22. $2.04 + [2.82 \div \{2.4 - (1.3 \times 0.3 + 0.6)\}]$

Solution:

$$\begin{aligned} & 2.04 + [2.82 \div \{2.4 - (1.3 \times 0.3 + 0.6)\}] \\ &= 2.04 + [2.82 \div \{2.4 - (0.39 + 0.6)\}] \\ &= 2.04 + [2.82 \div 1.41] \\ &= 2.04 + 2 \\ &= 2.04 + 2 = 4.04 \\ &= 4.04 \quad \text{Ans} \end{aligned}$$

Q.23. $[(7.45 - 1.35 + 1.5) \times 1.25 \div 2.5]$

Solution:

$$\begin{aligned} & [(7.45 - 1.35 + 1.5) \times 1.25 \div 2.5] \\ &= [(6.1 + 1.5) \times 1.25 \div 2.5] \\ &= [\{7.6\} \times 1.25 \div 2.5] \\ &= [7.6 \times 1.25 \div 2.5] \\ &= [9.5 \div 2.5] \\ &= 3.8 \quad \text{Ans} \end{aligned}$$

EXERCISE 5.2

Q.1 There are 640 students in talal in school $\frac{3}{10}$ of the students use own vehicles, $\frac{5}{8}$ use public transport and remaining students come on foot. How many students of the school come on foot?

Solution:

Number of Students use own vehicles

$$= \frac{3}{10} \times 640 = 192$$

Number of Students use public transport

$$= \frac{5}{8} \times 640 = 400$$

Number of Students coming on foot

$$\begin{aligned} &= 640 - (400 + 192) \\ &= 640 - 592 \\ &= 48 \\ &= 48 \text{ Students} \quad \text{Ans} \end{aligned}$$

Q.2 From a box of 140 oranges, $\frac{3}{7}$ of the oranges were sold and $\frac{1}{14}$ got spoiled. What is the number of the oranges left in the box?

Solution:

$$\text{Number of Oranges sold} = \frac{3}{7} \times 140 = 60$$

$$\text{Number of oranges spoiled} = \frac{1}{14} \times 140 = 10$$

$$\text{Oranges left in box} = 140 - (60 + 10)$$

$$= 140 - 70$$

$$= 70 \quad \text{Ans}$$

Q.3 A crowd of people was gathered for a cricket match. $\frac{1}{8}$ of crowd had come by train, $\frac{2}{7}$ by bus $\frac{1}{4}$ by own vehicles and the remaining people come on foot. Find the part of people who came on foot.

Solution:

$$\text{Number of people come by train} = \frac{1}{8}$$

$$\text{Number of People come by bus} = \frac{2}{7}$$

$$\text{Number of People come by own} = \frac{1}{4}$$

$$= \frac{1}{8} + \frac{2}{7} + \frac{1}{4}$$

$$= \left(\frac{7 + 16 + 14}{56} \right) = \frac{37}{56} = \frac{56 - 37}{56} = \frac{19}{56}$$

$$= \frac{19}{56} \text{ people Ans}$$

Q.4 Maira had Rs. 58,000, she gave $\frac{16}{29}$ of it to her mother and $\frac{1}{4}$ of the remainder in zakat found. Find the amount left with her?

Solution:

$$\text{Total amount} = 58,000 \text{ Rs.}$$

$$\text{Mother's share} = \frac{16}{29} \times 58,000 = 3200 \text{ Rs.}$$

$$\text{Remaining Amount} = 58000 - 32000 = 26000$$

$$\begin{aligned}\text{Amount of Zakat} &= \frac{1}{4} \times 26000 = 6500 \text{ Rs.} \\ \text{Remaining Amount} &= 26000 - 6500 \\ &= 19500 \quad \text{Ans}\end{aligned}$$

Q.5 Aamir planted 425 plants of tomatoes. After some days 25 plants died. What fraction of plant was survived?

Solution:

$$\begin{aligned}\text{Total plants of tomato} &= 425 \\ \text{Died plants} &= 25 \\ \text{remaining plant} &= 425 - 25 = 400 \\ \text{required fraction} &= \frac{400}{425} = \frac{16}{17} \quad \text{Ans}\end{aligned}$$

Q.6 Aijaz gave $\frac{2}{5}$ of his money to his daughter, $\frac{1}{7}$ to his son and the remainder to his wife. What fraction of the amount was given to his wife.

Solution:

$$\begin{aligned}\text{daughter's share} &= \frac{2}{5} \\ \text{Son's share} &= \frac{1}{7} \\ \text{Total money given} &= \frac{2}{5} + \frac{1}{7} \\ &= \frac{2}{5} + \frac{1}{7} = \frac{14+5}{35} = \frac{19}{35} \\ \text{Remainder Amount} &= \frac{35-19}{35} = \frac{16}{35}\end{aligned}$$

$$\text{Required fraction} = \frac{16}{35} \quad \text{Ans}$$

Q.7 Adeel had 26.50 meters of cloth. He used 5.80 meters of cloth for suit. He gives 11.50 metres of cloth to his brother. How much cloth is left with adeel in fraction.

Solution:

Adeel had cloth = 26.50m

Cloth used for himself = 5.80m

cloth given to for his brother suit = 11.50m

total cloth used = 5.8 + 11.50 = 17.30

Adeel had total cloth = 26.50

remaining cloth = 26.50 - 17.30 = 9.20

required fraction = $\frac{9.20}{26.50} = \frac{92}{265}$ Ans

Q.8 Anum's family purchased 5 packets of cooking oil at the rate of Rs. 121.80 per packet, 3 bags of rice at the rate of Rs. 235.50 per bag and 40 kg flour at the rate of Rs. 42.70 per kg. Find the total amount paid by her.

Solution:

Cost of cooking oil = 5 × 121.80 = 609.00

Cost of rice = 3 × 235.50 = 706.50

Cost of flour = 40 × 42.70 = 1708.00

Total amount = 609.60 + 706.50 + 1708.00
= 3023.50 Rs. Ans

Q.9. Umair spent 0.06 of his pocket money on monday, 0.25 on thuesday and 0.50 on wednesday. Remaining money spent on thursday. What fraction of his pocket money he had on thursday?

Solution:

Amount spent money on Monday = 0.06
Amount spent money on tuesday = 0.25

0.06
+ 0.25

$$\begin{aligned}\text{Amount spent money on wednesday} &= 0.50 + 0.50 \\ \text{Total spent money} &= 0.81 + 0.81\end{aligned}$$

$$\begin{aligned}\text{Required fraction} &= \frac{0.81}{100} = \frac{100 - 81}{100} = \frac{19}{100} \\ &= \frac{19}{100} \quad \text{Ans}\end{aligned}$$

Q.10. Sobia purchased the following items for her home.

- (i) Two electric bulbs at the rate of Rs. 80.95 each
 - (ii) Four small stools at the rate of Rs. 105.50 each
 - (iii) Three tables at the rate of Rs. 530.95 each
 - (iv) Six chairs at the rate of Rs. 458.30 each
- Find the total amount paid by her.

Solution:

$$\begin{aligned}\text{Cost of bulbs} &= 2 \times 80.95 = \text{Rs. } 161.9 \\ \text{Cost of stools} &= 4 \times 105.50 = \text{Rs. } 422.0 \\ \text{Cost of tables} &= 3 \times 530.95 = \text{Rs. } 1592.85 \\ \text{Cost of chairs} &= 6 \times 458.30 = \text{Rs. } 2749.8 \\ \text{Total paid Amount} &= 161.9 + 422.6 + 1592.85 \\ &\quad + 2749.80 \\ &= 4926.55 \text{ Rs.} \quad \text{Ans}\end{aligned}$$

REVIEW EXERCISE 5

Q.1. Simplify:

$$(i) \quad 1\frac{2}{5} \div \left\{ 2\frac{3}{5} - \left(1\frac{1}{4} - \frac{2}{3} \times 1\frac{1}{7} \right) \right\}$$

Solution:

$$\begin{aligned}&1\frac{2}{5} \div \left\{ \frac{13}{5} - \left(\frac{5}{4} - \frac{2}{3} \times 1\frac{1}{7} \right) \right\} \\ &= \frac{7}{5} \div \left\{ \frac{13}{5} - \left(\frac{5}{4} - \frac{2}{3} \times \frac{8}{7} \right) \right\} \\ &= \frac{7}{5} \div \left\{ \frac{13}{5} - \left(\frac{15-8}{12} \times \frac{8}{7} \right) \right\} \\ &= \frac{7}{5} \div \left\{ \frac{13}{5} - \left(\frac{7}{12} \times \frac{8}{7} \right) \right\}\end{aligned}$$

$$\begin{aligned} &= \frac{7}{5} \div \left\{ \frac{13}{5} - \left(\frac{2}{3} \right) \right\} \\ &= \frac{7}{5} \div \left\{ \frac{39-10}{15} \right\} \\ &= \frac{7}{5} \div \left\{ \frac{29}{15} \right\} \\ &= \frac{7}{5} \times \frac{15}{29} \\ &= \frac{21}{29} \quad \text{Ans} \end{aligned}$$

(ii) $2\frac{1}{4} \div \left[\frac{2}{3} \div \left\{ \frac{1}{3} - \left(\frac{1}{2} - \frac{1}{5} \div 1\frac{1}{2} \right) \right\} \right]$

Solution:

$$\begin{aligned} &2\frac{1}{4} \div \left[\frac{2}{3} \div \left\{ \frac{1}{3} - \left(\frac{1}{2} - \frac{1}{5} \div 1\frac{1}{2} \right) \right\} \right] \\ &= \frac{9}{4} \div \left[\frac{2}{3} \div \left\{ \frac{1}{3} - \left(\frac{1}{2} - \frac{1}{5} \div \frac{3}{2} \right) \right\} \right] \\ &= \frac{9}{4} \div \left[\frac{2}{3} \div \left\{ \frac{1}{3} - \left(\frac{5-2}{10} \div \frac{3}{2} \right) \right\} \right] \\ &= \frac{9}{4} \div \left[\frac{2}{3} \div \left\{ \frac{1}{3} - \left(\frac{3}{10} \div \frac{3}{2} \right) \right\} \right] \\ &= \frac{9}{4} \div \left[\frac{2}{3} \div \left\{ \frac{1}{3} - \left(\frac{3}{10} \times \frac{2}{3} \right) \right\} \right] \\ &= \frac{9}{4} \div \left[\frac{2}{3} \div \left\{ \frac{1}{3} - \frac{1}{5} \right\} \right] \\ &= \frac{9}{4} \div \left[\frac{2}{3} \div \left\{ \frac{5-3}{15} \right\} \right] \\ &= \frac{9}{4} \div \left[\frac{2}{3} \div \left\{ \frac{2}{15} \right\} \right] \end{aligned}$$

$$\begin{aligned}
 &= \frac{9}{4} \div \left[\frac{2}{3} \div \frac{2}{15} \right] \\
 &= \frac{9}{4} \div \left[\frac{2}{3} \times \frac{15}{2} \right] \\
 &= \frac{9}{4} \div \frac{5}{1} \\
 &= \frac{9}{4} \times \frac{1}{5} = \frac{9}{20} \\
 &= \frac{9}{20} \text{ Ans}
 \end{aligned}$$

(iii) $4.3 \times [3.9 \times 0.8 - 1.3 + \{4.8 \div 1.2 - (1.3 - 1.2 \times 2.5)\}]$

Solution:

$$\begin{aligned}
 &4.3 \times [3.9 \times 0.8 - 1.3 + \{4.8 \div 1.2 - (1.3 - 1.2 \times 2.5)\}] \\
 &= 4.3 \times [3.9 \times 0.8 - 1.3 + \{4.8 \div 1.2 - (0.1 \times 25)\}] \\
 &= 4.3 \times [3.9 \times 0.8 - 1.3 + \{4.8 \div 1.2 - (0.25)\}] \\
 &= 4.3 \times [3.9 \times 0.8 - 1.3 + 4.8 \div 0.95] \\
 &= 4.3 \times [3.9 \times 0.8 - 1.3 + \{5.0526\}] \\
 &= 4.3 \times [3.9 \times 0.8 - 6.3526] \\
 &= 4.3 \times [3.12 - 1.3 +] \\
 &= 4.3 \times 1.82 + 6.3526 \\
 &= 17.598 + 6.3526 \\
 &= 2.3951 \text{ Ans.}
 \end{aligned}$$

(iv) $2.9 - [1.05 \times 1.17 + (1.04 - 2.5 + 1.9)]$

Solution:

$$\begin{aligned}
 &2.9 - [1.05 \times 1.17 + (1.04 - 2.5 + 1.9)] \\
 &= 2.9 - [1.05 \times 1.17 + (1.04 - 2.5 + 1.9)] \\
 &= 2.9 - [1.05 \times 1.17 + (1.04 - 4.4)] \\
 &= 2.9 - [1.05 \times 1.17 + (3.36)] \\
 &= 2.9 - [1.05 \times 1.17 + 3.36] \\
 &= 2.9 - [1.05 \times 4.5885] \\
 &= 2.9 - 7.375 \\
 &= 4.475 \text{ Ans}
 \end{aligned}$$

Q.2 Solve the following:

- (i) Bilal sacrifices a goat and get $13\frac{5}{7}$ kg of meat. He gave one third of meat in charity. How much meat is left with him.

Solution:

$$\text{Meat from goat} = 13\frac{5}{7} \text{ kg}$$

$$\begin{aligned} \text{Charity} &= 13\frac{5}{7} \times \frac{1}{3} \\ &= \frac{96}{7} \times \frac{1}{3} \\ &= \frac{32}{7} \text{ kg} \end{aligned}$$

$$\begin{aligned} \text{Remaining meat} &= \frac{96}{7} - \frac{32}{7} \\ &= \frac{64}{7} \\ &= 9\frac{1}{7} \text{ Ans} \end{aligned}$$

- (ii) Azhar solved 15 questions out of 25 questions of maths. Find the fractions of solved and unsolved questions.

Solution:

$$\text{Solved questions in fraction} = \frac{15}{25} = \frac{3}{5}$$

$$\begin{aligned} \text{unsolved questions in fraction} &= 25 - 15 = 10 \\ &= \frac{10}{25} = \frac{2}{5} \text{ Ans} \end{aligned}$$

- Q.3** Fareena read $\frac{2}{5}$ of the book in one day. Remaining of the book was read on next day. What part of the book was read on next day? If book contains 150 pages, then find the number of pages she read on first day and the next day.

Solution:

$$\text{Pages read in one day} = \frac{2}{5} \times 150 = 60 \text{ pages}$$

$$\text{Pages read in next day} = 150 - 60 = 90 \text{ pages}$$

$$\text{Part of the was read on next day} = \frac{90}{150} = \frac{3}{5}$$

Ans: $\frac{3}{5}$ part on next day, 60 pages on 1st day, 90 pages on next day.

Q.4 A contractor purchased tiles of different qualities for a building repair as under:

- (i) Local tiles 240.34 square metres at the rate of Rs. 327.34 per square meters.
 - (ii) Imported tiles 105.28 square metres at the rate of Rs. 539.99 per square meters.
- Find the total amount paid by the contractor.

Solution:

$$\begin{aligned} \text{Local Tiles amount} &= 240.34 \times 327.34 \\ &= 78672.896 \text{ Rs.} \end{aligned}$$

$$\begin{aligned} \text{Imported tiles amount} &= 105.28 \times 539.99 \\ &= 56850.147 \end{aligned}$$

$$\begin{aligned} \text{Total paid Amount} &= 78672.896 + 56850.147 \\ &= 135523.03 \quad \text{Ans} \end{aligned}$$

Q.5 Write True or False for the following:

- (i) The symbol for vinculum is []. (True)
- (ii) In simplification, if there is a negative sign before a bracket, then the sign inside the bracket remains unchanged, when removing the brackets. (False)
- (iii) The expression $35 + 2 \times 8$ is simplified by first multiplying 2 by 8 and then adding 35 to it. (True)

Q.6. Fill in the blanks.

- (i) in BODMAS, M stands for multiplication.
- (ii) The bracket { } is called braces or curly brackets.
- (iii) Brackets are simplified in the order as:
vinculum, parenthesis, braces and square brackets.

More Notes, Books Visit Now: www.perfect24u.com

www.Perfect24u.com