



Chapter 2 Fractions

Exercise - 2.1. 2. Fractions class - VII.

Solution - 01:

(i) $\frac{7}{9}$ and $\frac{8}{13}$.

Let us first find the Lcm of 9 and 13.
we have,

$$9 \times 13 = 117.$$

$\therefore$ L.C.M of 9 and 13 is 117.

Now, we convert the given fractions to equivalent fractions with denominator 117.

we have,

$$\frac{7}{9} = \frac{7 \times 13}{9 \times 13} = \frac{91}{117} ; \frac{8}{13} = \frac{8 \times 9}{13 \times 9} = \frac{72}{117}.$$

we know that,

$$91 > 72$$

$$\therefore \frac{91}{117} > \frac{72}{117}, \text{ i.e. } \frac{7}{9} > \frac{8}{13}.$$

(ii) $\frac{11}{9}$ and $\frac{5}{9}$.

Let us

here the denominators are equal

$$\frac{11}{9} \text{ and } \frac{5}{9} \quad \text{w.k.t } 11 > 5$$

$$\therefore \frac{11}{9} > \frac{5}{9}.$$



(iii) $\frac{37}{41}$ and $\frac{19}{30}$.

Let us first find the LCM of 41 and 30.

We have,

$$\therefore \text{L.C.M of } 41 \text{ and } 30 \text{ is } 41 \times 30 = 1230$$

Now we convert the given fractions to equivalent fractions with denominator 1230.

We have,

$$\frac{37}{41} = \frac{37 \times 30}{41 \times 30} = \frac{1110}{1230};$$

$$\frac{19}{30} = \frac{19 \times 41}{30 \times 41} = \frac{779}{1230}.$$

We know that $1110 > 779$

$$\therefore \frac{37}{41} > \frac{19}{30}.$$

(iv) $\frac{17}{15}$ and $\frac{119}{105}$

$$\frac{119}{105} = \frac{17 \times 7}{15 \times 7} = \frac{17}{15}$$

$$\therefore \frac{17}{15} = \frac{17}{15} = \frac{119}{105}$$



Solution-02:-

$$(i) \frac{3}{8}, \frac{5}{6}, \frac{6}{8}, \frac{2}{4}, \frac{1}{3}.$$

Let us first find the LCM of the denominators:
we have,

$$\begin{array}{r} 4 \overline{) 8, 6, 8, 4, 3} \\ 2 \overline{) 2, 6, 2, 1, 3} \\ 3 \overline{) 1, 3, 1, 1, 3} \\ 1, 1, 1, 1, 1 \end{array}$$

$$\therefore \text{L.C.M} = 4 \times 2 \times 3 = 24.$$

Now, we convert the given each fraction to
its equivalent fraction with denominator 24.
we have,

$$\frac{3}{8} = \frac{3 \times 3}{8 \times 3} = \frac{9}{24}.$$

$$\frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24}.$$

$$\frac{6}{8} = \frac{6 \times 3}{8 \times 3} = \frac{18}{24}.$$

$$\frac{2}{4} = \frac{2 \times 3 \times 2}{4 \times 3 \times 2} = \frac{6 \times 2}{12 \times 2} = \frac{12}{24}$$

$$\frac{1}{3} = \frac{1 \times 8 \times 2}{3 \times 8 \times 2} = \frac{8}{24}$$

we know that,

$$\therefore 20 > 18 > 12 > 9 > 8$$

$$\therefore \frac{1}{3} < \frac{3}{8} < \frac{2}{4} < \frac{6}{8} < \frac{5}{6}.$$



(11) $\frac{4}{6}, \frac{3}{8}, \frac{6}{12}, \frac{5}{16}$.

Let us first find the L.C.M of denominators.
we have.

$$\begin{array}{r} 2 \overline{) 6, 8, 12, 16} \\ 2 \overline{) 3, 4, 6, 8} \\ 2 \overline{) 3, 2, 3, 4} \\ 3 \overline{) 3, 1, 3, 2} \\ 1, 1, 1, 2 \end{array}$$

$$\begin{aligned} \therefore \text{L.C.M} &= 2 \times 2 \times 2 \times 3 \times 2 \\ &= 48. \end{aligned}$$

Now, we convert each fraction to its
equivalent fraction with denominator 48.

we have.

$$\frac{4}{6} = \frac{4 \times 8}{6 \times 8} = \frac{32}{48}$$

$$\frac{3}{8} = \frac{3 \times 6}{8 \times 6} = \frac{18}{48}$$

$$\frac{6}{12} = \frac{6 \times 4}{12 \times 4} = \frac{24}{48}$$

$$\frac{5}{16} = \frac{5 \times 3}{16 \times 3} = \frac{15}{48}.$$

we know that.

$$32 > 18 > 24 > 15.$$

$$\therefore \frac{5}{16} < \frac{3}{8} < \frac{6}{12} < \frac{4}{6}.$$



Solution-03:

$$(i) \frac{4}{5}, \frac{7}{10}, \frac{11}{15}, \frac{17}{20}.$$

Let us first find the L.C.M of denominators
we have.

$$\begin{array}{r} 5 \overline{) 5, 10, 15, 20} \\ 2 \overline{) 1, 2, 3, 4} \\ 1, 1, 3, 2. \end{array}$$

$$\begin{aligned} \therefore \text{L.C.M} &= 5 \times 2 \times 3 \times 2 \\ &= 60. \end{aligned}$$

Now, we convert each fraction to its equivalent
fraction with denominator 60.

we have,

$$\frac{4}{5} = \frac{4 \times 12}{5 \times 12} = \frac{48}{60}$$

$$\frac{7}{10} = \frac{7 \times 6}{10 \times 6} = \frac{42}{60}$$

$$\frac{11}{15} = \frac{11 \times 4}{15 \times 4} = \frac{44}{60}$$

$$\frac{17}{20} = \frac{17 \times 3}{20 \times 3} = \frac{51}{60}.$$

We know that $51 > 48 > 44 > 42$.

$$\therefore \frac{17}{20} > \frac{4}{5} > \frac{11}{15} > \frac{7}{10}.$$



⑪ $\frac{2}{7}, \frac{11}{35}, \frac{9}{14}, \frac{13}{28}$.

Let us first find the L.C.M of denominators
we have

$$\begin{array}{r} 7 \overline{) 7, 35, 14, 28} \\ 2 \overline{) 1, 5, 2, 4} \\ 1, 5, 1, 2 \end{array}$$

$$\therefore \text{L.C.M} = 7 \times 2 \times 5 \times 2 \\ = 140.$$

Now, we convert each fraction to its equivalent
fraction with denominator 140.

we have,

$$\frac{2}{7} = \frac{2 \times 20}{7 \times 20} = \frac{40}{140}$$

$$\frac{11}{35} = \frac{11 \times 4}{35 \times 4} = \frac{44}{140}$$

$$\frac{9}{14} = \frac{9 \times 10}{14 \times 10} = \frac{90}{140}$$

$$\frac{13}{28} = \frac{13 \times 5}{28 \times 5} = \frac{65}{140}$$

we know that, $90 > 65 > 44 > 40$

$$\therefore \frac{90}{140} > \frac{65}{140} > \frac{44}{140} > \frac{40}{140}$$



Solution - 04.

Given fraction is $\frac{3}{5}$.

Remark - if the numerator and denominator of a fraction are both multiplied by the same non-zero number, then its value does not change.

$\therefore$ equivalent fractions are.

$$\frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$

$$\frac{3 \times 3}{5 \times 3} = \frac{9}{15}$$

$$\frac{3 \times 4}{5 \times 4} = \frac{12}{20}$$

$$\frac{3 \times 5}{5 \times 5} = \frac{15}{25}$$

$$\frac{3 \times 6}{5 \times 6} = \frac{18}{30}$$

five equivalent fractions of $\frac{3}{5}$ are

$$\frac{6}{10}, \frac{9}{15}, \frac{12}{20}, \frac{15}{25} \text{ and } \frac{18}{30}.$$



Solution - OS:-

$$(i) \frac{5}{8} + \frac{3}{10}$$

L.c.m of 8 and 10 is

$$\begin{array}{r} 2 \overline{) 8, 10} \\ 4, 5 \end{array}$$

$$\therefore \text{L.c.m} = 2 \times 4 \times 5 = 40.$$

So, we convert the given fractions into equivalent fractions with denominator 40.

$$\text{we have, } \frac{5}{8} = \frac{5 \times 5}{8 \times 5} = \frac{25}{40}$$

$$\frac{3}{10} = \frac{3 \times 4}{10 \times 4} = \frac{12}{40}.$$

$$\therefore \frac{5}{8} + \frac{3}{10} = \frac{25}{40} + \frac{12}{40} = \frac{25 + 12}{40} = \frac{37}{40}.$$

$$(ii) 4\frac{3}{9} + 9\frac{2}{5}$$

$$\frac{39}{9} + \frac{9 \times 5 + 2}{5} = \frac{39}{9} + \frac{47}{5}$$

$$\therefore \text{L.c.m of 9 and 5 is } 9 \times 5 = 45.$$

So, we convert the given fractions into equivalent fractions with denominator 45.

$$\text{we have, } \frac{39}{9} = \frac{39 \times 5}{9 \times 5} = \frac{195}{45}.$$

$$\frac{47}{5} = \frac{47 \times 9}{5 \times 9} = \frac{423}{45}$$

$$\therefore \frac{39}{9} + \frac{47}{5} = 4\frac{3}{9} + 9\frac{2}{5} = \frac{195}{45} + \frac{423}{45} = \frac{618}{45}$$



$$(iii) \frac{5}{6} + \frac{3}{1} + \frac{3}{4}$$

L.C.M of 6, 1 and 4 is

$$\begin{array}{r} 2 \overline{) 6, 1, 4} \\ 3, 1, 2 \end{array}$$

$$\therefore \text{L.C.M} = 2 \times 3 \times 2 = 12.$$

Now we convert each fraction to its equivalent fraction

we have

$$\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}; \quad \frac{3}{1} = \frac{3 \times 12}{1 \times 12} = \frac{36}{12}; \quad \frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

$$\therefore \frac{5}{6} + \frac{3}{1} + \frac{3}{4} = \frac{10}{12} + \frac{36}{12} + \frac{9}{12} = \frac{10 + 36 + 9}{12}$$

$$= \frac{55}{12}.$$

$$(iv) 2\frac{3}{5} + 4\frac{7}{10} + 2\frac{4}{15}$$

$$\frac{13}{5} + \frac{47}{10} + \frac{34}{15}$$

L.C.M of 5, 10 and 15 is $= 5 \times 2 \times 3 = 30$

Now, we convert each fraction to its equivalent fractions

we have,

$$\frac{13 \times 6}{5 \times 6} = \frac{78}{30}; \quad \frac{47 \times 3}{10 \times 3} = \frac{141}{30}; \quad \frac{34 \times 2}{15 \times 2} = \frac{68}{30}$$

$$\therefore 2\frac{3}{5} + 4\frac{7}{10} + 2\frac{4}{15} = \frac{78}{30} + \frac{68}{30} + \frac{141}{30} = \frac{78 + 68 + 141}{30} \\ = \frac{287}{30}$$



Solution - 06:

$$(i) \frac{13}{24} - \frac{7}{16}$$

L.C.M of 24 and 16

$$8 \overline{) 24, 16} \\ \underline{3, 2}$$

$$\therefore \text{L.C.M} = 8 \times 3 \times 2 = 48.$$

Now, we convert each fraction to its equivalent fractions we have,

$$\frac{13}{24} \times 2 = \frac{26}{48} \quad \text{and} \quad \frac{7}{16} = \frac{7 \times 3}{16 \times 3} = \frac{21}{48}$$

$$\therefore \frac{13}{24} - \frac{7}{16} = \frac{26}{48} - \frac{21}{48} = \frac{26-21}{48} = \frac{5}{48}$$

$$(ii) \quad 6 \text{ and } \frac{23}{3}$$

L.C.M of 1 and 3 is 3.

Now, we convert each fraction to its equivalent fraction with denominator 3.

we have,

$$\frac{6}{1} = \frac{6 \times 3}{3 \times 1} = \frac{18}{3} \quad \text{and} \quad \frac{23}{3}$$

$$\frac{23}{3} - \frac{18}{3} = \frac{23}{3} - 6 = \frac{23-18}{3} = \frac{5}{3}$$



(ii) $\frac{21}{25}$ and $\frac{18}{20}$.

L.c.m of 25 and 20 is $\frac{25, 20}{5, 4}$

$\therefore \text{L.C.M} = 5 \times 5 \times 4 = 100.$

$$\frac{21 \times 4}{25 \times 4} = \frac{84}{100} \quad \text{and} \quad \frac{18 \times 5}{20 \times 5} = \frac{90}{100}$$

$$\therefore \frac{18}{20} - \frac{21}{25} = \frac{90}{100} - \frac{84}{100} = \frac{90-84}{100}$$

$$= \frac{6}{100}$$

$$= \frac{3}{50}$$

$$\therefore \frac{18}{20} - \frac{21}{25} = \frac{3}{50}.$$

(v) $3\frac{3}{10} = \frac{(3 \times 10) + 3}{10} = \frac{33}{10}$

$$2\frac{7}{15} = \frac{(2 \times 15) + 7}{15} = \frac{37}{15}$$

L.c.m of 10 and 15 is 30

$$\frac{37 \times 2}{30} - \frac{33 \times 3}{30} = \frac{74}{30} - \frac{99}{30} = \frac{74-99}{30} = \frac{-25}{30}$$

$$= \frac{5}{6}$$

$$\therefore 2\frac{7}{15} - 3\frac{3}{10} = \frac{5}{6}.$$



Solution - 07:-

(i) $\frac{6}{7} - \frac{9}{11}$

L.c.m of 7 and 11 is 77

$$\frac{6}{7} = \frac{6 \times 11}{7 \times 11} = \frac{66}{77} \text{ and } \frac{9}{11} = \frac{9 \times 7}{11 \times 7} = \frac{63}{77}$$

$$\Rightarrow \frac{6}{7} - \frac{9}{11} = \frac{66}{77} - \frac{63}{77}$$

$$= \frac{66-63}{77}$$

$$= \frac{3}{77}$$

(ii) $8 - \frac{5}{9}$

L.c.m of 1 and 9 is 9

$$\frac{8 \times 9}{9} = \frac{72}{9} \text{ and } \frac{5}{9} = \frac{5 \times 1}{9 \times 1} = \frac{5}{9}$$

$$\Rightarrow 8 - \frac{5}{9} = \frac{72}{9} - \frac{5}{9} = \frac{72-5}{9}$$

$$= \frac{67}{9}$$

$$\therefore 8 - \frac{5}{9} = \frac{72}{9} - \frac{5}{9} = \frac{67}{9}$$



$$(iii) \quad 9 - 5\frac{2}{3}$$

$$9 - \frac{(5 \times 3) + 2}{3} = \frac{9}{1} - \frac{17}{3}$$

L.C.M of 1 and 3 is 3.

$$\frac{9}{1} = \frac{9 \times 3}{3} = \frac{27}{3} \text{ and } \frac{17}{3}$$

$$9 - 5\frac{2}{3} = 9 - \frac{17}{3} = \frac{27}{3} - \frac{17}{3}$$

$$= \frac{27 - 17}{3}$$

$$= \frac{10}{3}$$

$$\therefore 9 - 5\frac{2}{3} = \frac{10}{3}$$

$$(iv) \quad 4\frac{3}{10} - 1\frac{2}{15}$$

$$4\frac{3}{10} = \frac{(4 \times 10) + 3}{10} = \frac{43}{10}$$

$$1\frac{2}{15} = \frac{(1 \times 15) + 2}{15} = \frac{17}{15}$$

$$4\frac{3}{10} - 1\frac{2}{15} = \frac{43}{10} - \frac{17}{15}$$

L.C.M of 10 and 15 is 30

$$\frac{43}{10} = \frac{43 \times 3}{10 \times 3} = \frac{129}{30} \text{ and } \frac{17}{15} = \frac{17 \times 2}{15 \times 2} = \frac{34}{30}$$

$$\therefore 4\frac{3}{10} - 1\frac{2}{15} = \frac{129}{30} - \frac{34}{30} = \frac{129 - 34}{30} = \frac{95}{30} = \frac{19}{6}$$



Solution-08:-

(i) $\frac{2}{3} + \frac{1}{6} - \frac{2}{9}$

L.C.M of 3, 6 and 9 is

$$\begin{array}{r} 3 \overline{) 3, 6, 9} \\ 1, 2, 3 \end{array}$$

$$\therefore \text{L.C.M} = 3 \times 2 \times 3 = 18.$$

$$\therefore \frac{2}{3} = \frac{2 \times 6}{3 \times 6} = \frac{12}{18}, \frac{1}{6} = \frac{1 \times 3}{6 \times 3} = \frac{3}{18} \text{ and } \frac{2}{9} = \frac{2 \times 2}{9 \times 2} = \frac{4}{18}$$

$$\therefore \frac{2}{3} + \frac{1}{6} - \frac{2}{9} = \frac{12 + 3 - 4}{18} = \frac{15 - 4}{18} = \frac{11}{18}$$

(ii) $12 - 3\frac{1}{2}$

$$3\frac{1}{2} = \frac{(3 \times 2) + 1}{2} = \frac{7}{2}$$

$$\therefore 12 = \frac{12 \times 2}{2 \times 1} = \frac{24}{2}$$

$$\begin{aligned} 12 - 3\frac{1}{2} &= 12 - \frac{7}{2} = \frac{24}{2} - \frac{7}{2} \\ &= \frac{24 - 7}{2} \\ &= \frac{17}{2} \end{aligned}$$

$$\therefore 12 - 3\frac{1}{2} = \frac{17}{2}$$



$$(iii) \quad 7\frac{5}{6} - 4\frac{3}{8} + 2\frac{7}{12}$$

$$7\frac{5}{6} = \frac{(7 \times 6) + 5}{6} = \frac{47}{6}$$

$$4\frac{3}{8} = \frac{(4 \times 8) + 3}{8} = \frac{35}{8}$$

$$2\frac{7}{12} = \frac{(2 \times 12) + 7}{12} = \frac{31}{12}$$

L.C.M of 6, 8, 12 is

$$\begin{array}{r} 6 \overline{) 6, 8, 12} \\ 2 \overline{) 1, 8, 2} \\ 1, 4, 1 \end{array}$$

$$L.C.M = 6 \times 2 \times 4 = 48$$

$$\therefore \frac{47}{6} = \frac{47 \times 8}{6 \times 8} = \frac{376}{48} ; \frac{35 \times 6}{8 \times 6} = \frac{210}{48} \text{ and}$$

$$\frac{31}{12} = \frac{31 \times 4}{12 \times 4} = \frac{124}{48}$$

$$\therefore \frac{376}{48} - \frac{210}{48} + \frac{124}{48} = \frac{145}{24}$$

Solution-09.

$$\text{Required number} = 12 - 5\frac{3}{7}$$

$$= \frac{12}{1} - \frac{(5 \times 7) + 3}{7}$$

$$= \frac{12 \times 7}{7} - \frac{38}{7}$$

$$= \frac{84 - 38}{7}$$

$$= \frac{46}{7}$$



Solution-10:

$$\begin{aligned}\text{Required number} &= 12\frac{3}{5} - 5\frac{4}{15} \\&= \frac{(12 \times 5) + 3}{5} - \frac{(5 \times 15) + 4}{15} \\&= \frac{63}{5} - \frac{79}{15} \\&= \frac{63 \times 3}{5 \times 3} - \frac{79}{15} \\&= \frac{189}{15} - \frac{79}{15} \\&= \frac{110}{15} \\&= \frac{22}{3}\end{aligned}$$

Solution-11:

time devoted for other subjects = total study time -
time devoted for maths and science

$$\begin{aligned}&= 5\frac{2}{3} - 2\frac{4}{5} \\&= \frac{(5 \times 3) + 2}{3} - \frac{(2 \times 5) + 4}{5} \\&= \frac{17}{3} - \frac{14}{5} \\&= \frac{17 \times 5}{3 \times 5} - \frac{14 \times 3}{5 \times 3} \\&= \frac{85 - 42}{15} = \frac{43}{15} = 2\frac{13}{15}\end{aligned}$$



Solution-12:-

$$\text{length of other piece} = 12\frac{3}{4} - 5\frac{1}{4}$$

$$= \frac{(12 \times 4) + 3}{4} - \frac{(5 \times 4) + 1}{4}$$

$$= \frac{51}{4} - \frac{21}{4}$$

$$= \frac{30}{4}$$

$$= \frac{15}{2}$$

$$= 7\frac{1}{2} \text{ m.}$$

Solution-13:-

$$\text{rectangular sheet paper perimetry} = 2(12\frac{1}{2} + 10\frac{2}{3})$$

$$= 2(\frac{25}{2} + \frac{32}{3})$$

$$= 2(\frac{25 \times 3 + 32 \times 2}{2 \times 3})$$

$$= 2(\frac{75 + 64}{6})$$

$$= 2(\frac{139}{6})$$

$$= \frac{139 \times 2}{6} = \frac{139}{3}$$

$$= 46\frac{1}{3}$$

∴ Perimeter of rectangular sheet is $46\frac{1}{3}$ cm.



14. Yes, given square is a magic square

$$\therefore \frac{4}{11} + \frac{9}{11} + \frac{2}{11} = \frac{15}{11}$$

$$\frac{3}{11} + \frac{5}{11} + \frac{7}{11} = \frac{15}{11}$$

$$\frac{8}{11} + \frac{1}{11} + \frac{6}{11} = \frac{15}{11}$$

$$\frac{4}{11} + \frac{3}{11} + \frac{8}{11} = \frac{15}{11}$$

$$\frac{9}{11} + \frac{5}{11} + \frac{1}{11} = \frac{15}{11}$$

$$\frac{2}{11} + \frac{7}{11} + \frac{6}{11} = \frac{15}{11}$$

$$\frac{4}{11} + \frac{5}{11} + \frac{6}{11} = \frac{15}{11}$$

$$\frac{8}{11} + \frac{5}{11} + \frac{2}{11} = \frac{15}{11}$$

Solution -15:-

$$\begin{aligned}\text{Cost of Mathematics Book} &= 25\frac{3}{4} \\ &= \frac{103}{4}\end{aligned}$$

$$\begin{aligned}\text{Cost of Science Book} &= 20\frac{1}{2} = \frac{20 \times 2 + 1}{2} \\ &= \frac{41}{2} = \frac{41 \times 2}{2 \times 2} \\ &= \frac{82}{2}\end{aligned}$$



$\frac{14}{\text{cm}}$ we know that.

$$103 > 89$$

$$\therefore \text{Difference of cost} = \frac{103}{4} - \frac{89}{4}$$

$$= \frac{103 - 89}{4}$$

$$= \frac{21}{4}$$

$$= 5 \frac{1}{4}$$

$\therefore$ Mathematics Book is by Rs $5 \frac{1}{4}$.

Solution -16:-

$$(i) \quad \frac{2}{3} \times \square = \frac{10}{30}$$

$$\frac{2}{3} \times \frac{1}{2} = \frac{10}{30}$$

$$\frac{1}{3} = \frac{1}{3}$$

$\therefore$ Required number = $\frac{1}{3}$.

$$(ii) \quad \frac{2}{5} \times \frac{8}{15} = \frac{24}{75}$$



Exercise - 2.2.

Solution - 01:-

(i) $\frac{7}{11}$ by $\frac{3}{5}$

$$\frac{7}{11} \times \frac{3}{5} = \frac{7 \times 3}{11 \times 5}$$

$$= \frac{21}{55}$$

(ii) $\frac{3}{5}$ by 25

$$\frac{3}{5} \times 25 = 3 \times 5 = 15$$

(iii) $3\frac{4}{15}$ by 24.

$$\frac{(3 \times 15) + 4}{15} \times 24$$

$$= \frac{49}{15} \times 24$$

$$= \frac{49}{5} \times 8$$

$$= \frac{392}{5}$$

$$= 78\frac{2}{5}$$

$$\therefore 3\frac{4}{15} \times 24 = 78\frac{2}{5}$$



(iv) $3\frac{1}{8} \text{ by } 4\frac{10}{11}$

$$3\frac{1}{8} = \frac{3 \times 8 + 1}{8} = \frac{25}{8}$$

$$4\frac{10}{11} = \frac{4 \times 11 + 10}{11} = \frac{54}{11}$$

Solution-02:-

(i) $\frac{4}{7} \times \frac{14}{25} = \frac{4 \times 14}{7 \times 25} = \frac{56}{175}$

(ii) $7\frac{1}{2} \times 2\frac{4}{15} = \frac{(7 \times 2) + 1}{2} \times \frac{(2 \times 15) + 4}{15}$

$$= \frac{15}{2} \times \frac{34}{15}$$

$$= \frac{15 \times 34}{2 \times 15}$$

$$= \frac{34}{2}$$

$$= 17$$

(iii) $3\frac{6}{7} \times 4\frac{2}{3} = \frac{21}{7} \times \frac{14}{3}$

$$= \frac{9 \times 14^2}{7} = 9 \times 2$$
$$= 18$$



$$\begin{aligned} 2. (iv) \quad 6\frac{11}{14} \times 3\frac{1}{2} &= \frac{95}{14} \times \frac{7}{2} \\ &= \frac{95}{4} \\ &= 23\frac{3}{4} \end{aligned}$$

Solution - 03

$$\begin{aligned} (i) \quad \frac{12}{25} \times \frac{15}{28} \times \frac{35}{36} &= \frac{\cancel{12}^3 \times \cancel{15}^3 \times \cancel{35}^5}{25 \times \cancel{28}^4 \times \cancel{36}^4} \\ &= \frac{1}{4} \end{aligned}$$

$$\begin{aligned} (ii) \quad \frac{10}{27} \times \frac{39}{56} \times \frac{28}{65} &= \frac{\cancel{10}^2 \times \cancel{39}^3 \times \cancel{28}^4}{27 \times \cancel{56}^4 \times \cancel{65}^5} \\ &= \frac{5 \times 39}{27 \times 65} \\ &= \frac{39 \div 13}{27 \times 13} = \frac{3}{27} = \frac{1}{9} \end{aligned}$$

$$\begin{aligned} (iii) \quad 2\frac{2}{17} \times 7\frac{2}{9} \times 1\frac{33}{52} &= \frac{36}{17} \times \frac{65}{9} \times \frac{85}{52} \\ &= 26 \end{aligned}$$



4) (i) $\frac{1}{2} \text{ of } 4\frac{2}{9}$

$$\frac{1}{2} \times \frac{(4 \times 9) + 2}{9}$$

$$\frac{1}{2} \times \frac{38}{9} = \frac{38}{18} = \frac{19}{9}$$
$$= 2\frac{1}{9}$$

(ii) $\frac{5}{8} \times \frac{(9 \times 3) + 2}{3}$

$$= \frac{5}{8} \times \frac{29}{3} = \frac{145}{24}$$

$$= 6\frac{1}{24}$$

(iii) $\frac{2}{3} \times \frac{2^3}{16^8}$

$$= \frac{3}{8}$$

Solution - 05 :-

$$\frac{1}{2} \times \frac{6}{7} = \frac{6}{14} = \frac{3}{7}$$

$$\frac{2}{3} \times \frac{8}{7} = \frac{16}{21}$$

$$\frac{3}{7} \text{ (or) } \frac{2}{7}$$

WKT

$$3 > 2$$

$$\frac{3}{7} > \frac{2}{7}$$



Solution-06.

$$(i) \frac{7}{11} \times 330 = 7 \times 30 = 210 \text{ Rupees}$$

$$(ii) \frac{5}{9} \times 108 = 5 \times 12 = 60 \text{ meters}$$

$$(iii) \frac{3}{7} \times 42 = 3 \times 6 = 18 \text{ Litres}$$

$$(iv) \frac{1}{12} \times 60 \text{ minutes} = 5 \text{ minutes} \quad [\because \text{an hour} = 60 \text{ min}]$$

$$(v) \frac{5}{6} \times 12 \text{ months} = 5 \times 2 \text{ months} \quad [\because \text{an year} = 12 \text{ months}]$$
$$= 10 \text{ months}$$

$$(vi) \frac{3}{20} \times \frac{50}{100} \text{ gm} = 150 \text{ gm}$$

$$(vii) \frac{7}{20} \times 1000 \text{ ml} = 350 \text{ ml}$$

$$(viii) \frac{5}{6} \times 24 \text{ hrs} = 5 \times 4 \text{ hrs} = 20 \text{ hrs}$$

$$(ix) \frac{2}{7} \times 7 = 2 \text{ days} \quad [\because \text{one week} = 7 \text{ days}]$$

Solution-07:

Total saplings in a row = 4.

distance b/w adjacent saplings = $\frac{3}{4} \text{ m}$ $\therefore$ distance between the first and last sapling
 $= \frac{3}{4} \times 4 \text{ m} = 3 \text{ m}.$



Solution-08:-

Ravish reads $\frac{1}{3}$ part of book in one hour.Part of book will he read in $2\frac{1}{5}$ hours is

$$= 2\frac{1}{5} \times (\text{Ravish read part in an hour})$$

$$= 2\frac{1}{5} \times \frac{1}{3}$$

$$= \frac{(2 \times 5) + 1}{5} \times \frac{1}{3}$$

$$= \frac{11}{15}$$

 $\therefore$ Ravish Reads $\frac{11}{15}$ Part of book in $2\frac{1}{5}$ hours.

Solution-09:-

Lipika reads a book for $\frac{1}{4}$ hour every day.

Number of hours required to read book

$$= (\text{No. of days}) \times (\text{daily reading hours})$$

$$= 6 \times \frac{1}{4}$$

$$= \frac{6}{4}$$

$$= \frac{3}{2}$$

$$= 1\frac{1}{2} \text{ hours}$$



solution - 10:-

Area of a Rectangular Park = Length $\times$ breadth

$$\text{Given that Length} = 41\frac{2}{3} \text{ m} = \frac{(41 \times 3) + 2}{3} = \frac{125}{3} \text{ m}$$

$$\text{breadth} = 18\frac{3}{5} \text{ m} = \frac{93}{5} \text{ m}$$

$$\begin{aligned} \text{Rectangular Park Area} &= \frac{125}{3} \times \frac{93}{5} \\ &= 775 \text{ m}^2 \end{aligned}$$

solution - 11:-

cost per litre $\rightarrow$ Rs $17\frac{3}{4}$ Cost of $7\frac{2}{5}$ litres of Milk = $7\frac{2}{5} \times$ cost per litre

$$= \frac{(35+2)}{5} \times \frac{(17 \times 4) + 3}{4}$$

$$= \frac{37}{5} \times \frac{71}{4}$$

$$= \text{Rs. } \frac{2627}{20}$$

$$= \text{Rs } 131\frac{7}{20}$$



Solution-12:-

$$\text{km per hour} = 8\frac{1}{3} \text{ km.}$$

$$\text{distance covers in } 2\frac{2}{3} \text{ hours} = 2\frac{2}{3} \times \text{km per hour}$$

$$= \frac{8}{3} \times \frac{2\frac{2}{3}}{1}$$

$$= 20 \text{ km.}$$

Sharda covers 20 km in $2\frac{2}{3}$ hours.

Solution-13:-

$$\text{sugar bag capacity} = 30 \text{ kgs.}$$

$$\text{Consumption of sugar} = \frac{2}{3} \text{ Total sugar}$$

$$= \frac{2}{3} \times 30 \text{ kg}$$

$$= 2 \times 10 \text{ kg}$$

$$= 20 \text{ kg.}$$

$$\text{Sugar Left} = \text{Total - sugar consumption}$$

$$= 30 \text{ kg} - 20 \text{ kg}$$

$$= 10 \text{ kg}$$



Solution-14:-

we know that,

$$\text{Area of a square} = (\text{Length})^2$$

$$\text{Length} = 6\frac{2}{3} \text{ m} = \frac{20}{3} \text{ m}$$

$$\text{Area of a square} = \frac{20}{3} \times \frac{20}{3}$$

$$= \left(\frac{20}{3}\right)^2$$

$$= \frac{400}{9}$$

$$= 44\frac{4}{9} \text{ m}^2$$

Solution-15:-

$$\text{Total no. of students} = 45,$$

$$\frac{3}{5} \text{ of total students} = \text{boys}$$

$$\Rightarrow \text{Boys in the class} = \frac{3}{5} \times 45$$

$$= 3 \times 9$$

$$= 27 \text{ boys}$$

$$\therefore \text{Girls in the class} = \text{Total} - \text{Boys}$$

$$= 45 - 27$$

$$= 18.$$



Exercise-2.3.

Solution-01:-

(i) $\frac{7}{3}$, improper(ii) $\frac{8}{5}$, improper(iii) $\frac{7}{9}$, proper(iv) $\frac{5}{6}$, proper(v) $\frac{7}{12}$, proper

(vi) 8, Whole numbers.

Solution-02:-

(i) $\frac{3}{8}$ by $\frac{5}{9}$.

$$\frac{3}{8} \div \frac{5}{9} = \frac{3}{8} \times \frac{9}{5} = \frac{27}{40}$$

$$(ii) 3\frac{1}{4} \div \frac{2}{3} = \frac{13}{4} \div \frac{2}{3}$$

$$= \frac{13}{4} \times \frac{3}{2}$$

$$= \frac{39}{8}$$

$$(iii) \frac{7}{8} \div 4\frac{1}{2} = \frac{7}{8} \div \frac{9}{2}$$

$$= \frac{7}{8} \times \frac{2}{9} = \frac{7}{36}$$



$$2. \text{iv} \quad 6\frac{1}{4} \div 2\frac{3}{5}$$

$$\frac{25}{4} \div \frac{13}{5}$$

$$= \frac{25}{4} \times \frac{5}{13}$$

$$= \frac{125}{52}$$

$$= 2\frac{21}{52}$$

Solution - 03:

$$(i) \quad \frac{3}{8} \div 4$$

$$\frac{3}{8} \times \frac{1}{4} = \frac{3}{32}$$

$$(ii) \quad \frac{9}{16} \div \frac{6}{1}$$

$$\frac{9}{16} \div \frac{6}{1} = \frac{9}{16} \times \frac{1}{6} = \frac{3}{32}$$

$$(iii) \quad \frac{9}{1} \div \frac{3}{16} = \frac{9}{1} \times \frac{16}{3} = 3 \times 16 = 48.$$

$$(iv) \quad 10 \div \frac{100}{3} = \frac{10}{1} \times \frac{3}{100} = \frac{3}{10}.$$



Solution - 04:-

$$(i) \frac{3}{10} \div \frac{10}{3}$$

$$= \frac{3}{10} \times \frac{3}{10} = \frac{9}{100}$$

$$(ii) 4\frac{3}{5} \div \frac{4}{5}$$

$$\frac{23}{5} \div \frac{4}{5} = \frac{23}{5} \times \frac{5}{4} = \frac{23}{4} = 5\frac{3}{4}$$

$$(iii) 5\frac{4}{7} \div 1\frac{3}{10} = \frac{39}{7} \div \frac{13}{10}$$

$$= \frac{39}{7} \times \frac{10}{13}$$

$$= \frac{39 \times 10}{7 \times 13}$$

$$= \frac{30}{7}$$

$$= 4\frac{2}{7}$$

$$(iv) 4 \div 2\frac{2}{5} = 4 \div \frac{12}{5}$$

$$= \frac{4}{1} \times \frac{5}{12}$$

$$= \frac{5}{3}$$

$$= 1\frac{2}{3}$$



Solution-05:

Given that,

$$\text{Total length of wire} = 12\frac{1}{2} \text{ m} = \frac{25}{2} \text{ m.}$$

$$\text{No. of pieces} = 10.$$

$$\text{length of each piece} = \frac{25}{2} \div 10$$

$$= \frac{25}{2} \times \frac{1}{10}$$

$$= \frac{5}{4} \text{ m.}$$

$$= 1\frac{1}{4} \text{ m.}$$

Solution-06:

W.K.T rectangular plot Area = length $\times$ width

$$\text{Glt Area} = 65\frac{1}{3} \text{ m}^2 = \frac{196}{3} \text{ m}^2$$

$$\text{Length} = 12\frac{1}{4} = \frac{49}{4} \text{ m.}$$

$$\Rightarrow \frac{196}{3} = \frac{49}{4} \times \text{width}$$

$$\Rightarrow \text{width} = \frac{196}{3} \div \frac{49}{4}$$

$$= \frac{196}{3} \times \frac{4}{49} = \frac{4 \times 4}{3}$$

$$= \frac{16}{3} \text{ m} = 5\frac{1}{3} \text{ m}$$



Solution-07:-

$$\text{Required number} = 4\frac{4}{9} \div 6\frac{2}{9}$$

$$= \frac{40}{9} \div \frac{56}{9}$$

$$= \frac{40}{9} \times \frac{9}{56}$$

$$= \frac{40}{56}$$

$$= \frac{20}{28}$$

$$= \frac{10}{14}$$

$$= \frac{5}{7}$$

Solution-08:-

$$\text{Required number} = 25\frac{5}{6} \div 6\frac{2}{3}$$

$$= \frac{155}{6} \div \frac{20}{3}$$

$$= \frac{155}{6} \times \frac{3}{20}$$

$$= \frac{155}{40}$$

$$= \frac{31}{8}$$

$$= 3\frac{7}{8}$$



Solution-09:-

cost of total apples = RS 400.

Apples rate per kg = $400 \div 6\frac{1}{4}$

$$= \frac{400}{1} \div \frac{25}{4}$$

$$= \frac{400}{1} \times \frac{4}{25}$$

$$= 16 \times 4$$

$$= \text{RS } 64.$$

Solution -10:-

Total cost = 630.

dozen cost = $12 \times$ each orange cost

$$= 12 \times \left(\frac{5 \times 4 + 1}{4} \right)$$

$$= 12 \times \frac{21}{4}$$

$$= 3 \times 21 = 63.$$

No. of dozen for RS 630 = $\frac{630}{\text{dozen cost}}$

$$= \frac{630}{63}$$

$$= 10 \text{ dozens}$$



Solution-11:-

Quantity Of milk to student = $\frac{3}{10}$ litre.No. of students = ~~30~~ 9.

Total milk = 30 litres

No. of students = $30 \div \frac{3}{10}$

$$= \frac{30 \times 10}{3}$$

$$= \frac{300}{3} \text{ students}$$

$$= 100 \text{ students}$$

30 litres of milk distributes to 100 students
every day.

Solution -12:-

each ticket cost = Rs $30 \frac{3}{4}$ No. of tickets = $\frac{\text{Total amount}}{\text{Ticket cost}}$

Total amount = Rs 6496

No. of Tickets = $6496 \div \frac{203}{4}$

$$= \frac{6496 \times 4}{203}$$

$$= 128$$

 $\therefore$ 128 Tickets were sold