Chapter 2 Fractions

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,

$91 > 72$

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

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

Let us

here the denominators are equal

$\frac{11}{9}$ and $\frac{5}{9}$ 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.

$\therefore$ L.c.m of 41 and 30 is $41 \times 30 = 1230$

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

we have,

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

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

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.

$$\begin{array}{r|l} 4 & 8, 6, 8, 4, 3 \\ 2 & 2, 6, 2, 1, 3 \\ 3 & 1, 3, 1, 1, 3 \\ & 1, 1, 1, 1, 1 \end{array}$$

$\therefore$ L.cm $= 4 \times 2 \times 3 = 24$.

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.

$$\begin{array}{r|l} 2 & 6, 8, 12, 16 \\ \hline 2 & 3, 4, 6, 8 \\ \hline 2 & 3, 2, 3, 4 \\ \hline 3 & 3, 1, 3, 2 \\ \hline & 1, 1, 1, 2 \end{array}$$

$\therefore$ L.C.M $= 2 \times 2 \times 2 \times 3 \times 2$

$= 48$.

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.

$$\begin{array}{l|l} 5 & 5, 10, 15, 20 \\ 2 & 1, 2, 3, 4. \\ & 1, 1, 3, 2. \end{array}$$

$\therefore$ L.C.M $= 5 \times 2 \times 3 \times 2$

$= 60.$

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

$$\begin{array}{r|l} 7 & 7, 35, 14, 28 \\ 2 & 1, 5, 2, 4 \\ & 1, 5, 1, 2 \end{array}$$

$\therefore$ 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,

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

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

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

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

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

$\therefore \frac{90}{14} > \frac{13}{28} > \frac{11}{35} > \frac{2}{7}$.

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.

∴ equivalent fractions are.

$$\frac{3\times2}{5\times2} = \frac{6}{10}.$$

$$\frac{3\times3}{5\times3} = \frac{9}{15}$$

$$\frac{3\times4}{5\times5} = \frac{12}{20}$$

$$\frac{3\times5}{5\times5} = \frac{15}{25}$$

$$\frac{3\times6}{5\times6} = \frac{18}{30}.$$

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 - 05:-

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

L.c.m of 8 and 10 is

$$2\overline{)8, 10}$$
$$4, 5$$

$\therefore$ L.cm $= 2 \times 4 \times 5 = 40$.

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

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

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

$\therefore$ L.cm of 9 and 5 is $9 \times 5 = 45$.

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

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

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

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

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

L.cm of 6, 1 and 4 is

$$2 \overline{)6, 1, 4}$$
$$3, 1, 2$$

$\therefore$ L.cm $= 2 \times 3 \times 2 = 12$.

Now we convert each fraction to its equivalent fraction

we have

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

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

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

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

$$5 \overline{)5, 10, 15}$$
$$1, 2, 3$$

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

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

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

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

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

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

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

(ii) 6 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.

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

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

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

L.cm of 25 and 20 is $5 \overline{)25, 20}$
$5, 4$

$\therefore$ L.cm $= 5 \times 5 \times 4 = 100$.

$\frac{21 \times 4}{2 \times 5 \times 4} = \frac{84}{100}$ and $\frac{18 \times 5}{20 \times 5} = \frac{90}{100}$

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

$= \frac{6}{100}$

$= \frac{3}{50}$

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

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

$2\frac{7}{15} = \frac{(2 \times 15) + 7}{10} = \frac{37}{15}$

L.cm of 10 and 15 is 30

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

$= \frac{25}{30}$

$= \frac{5}{6}$

$\therefore 2\frac{7}{15} - 3\frac{3}{10} = \frac{99-74}{30} = \frac{5}{6}$.

Solution-07:-

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

L.c.m of 7 and 11 is 77

$\frac{6}{7} = \frac{6 \times 11}{7 \times 11} = \frac{66}{77}$ 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

$\frac{8 \times 9}{9} = \frac{72}{9}$ 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) $9 - 5\frac{2}{3}$

$$9 - \frac{(5\times3)+2}{3} = \frac{9}{1} - \frac{17}{3}.$$

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

$$\frac{9}{1} = \frac{9\times3}{3} = \frac{27}{3} \text{ and } \frac{17}{3}$$

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

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

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

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

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

$$4\frac{3}{10} = \frac{(4\times10)+3}{10} = \frac{43}{10}$$

$$1\frac{2}{15} = \frac{(1\times15)+2}{15} = \frac{17}{15}.$$

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

L.cm of 10 and 15 is 30

$$\frac{43}{10} = \frac{43\times3}{10\times3} = \frac{129}{30} \text{ and } \frac{17}{15} = \frac{17\times2}{15\times2} = \frac{34}{30}$$

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

Solution-08:-

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

L.c.m of 3, 6 and 9 is

$$3 \overline{)3,\ 6,\ 9}$$
$$1,\ 2,\ 3$$

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

$\therefore \frac{2}{3} = \frac{2 \times 6}{3 \times 6} = \frac{12}{18}$, $\frac{1}{6} = \frac{1 \times 3}{6 \times 3} = \frac{3}{18}$ 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) $12 - 3\frac{1}{2}$

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

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

$12 - 3\frac{1}{2} = 12 - \frac{7}{2} = \frac{24}{2} - \frac{7}{2}$

$= \frac{24 - 7}{2}$

$= \frac{17}{2}$

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

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

$7\frac{5}{6} = \frac{(7\times6)+5}{6} = \frac{47}{6}$

$4\frac{3}{8} = \frac{(4\times8)+3}{8} = \frac{35}{8}$.

$2\frac{7}{12} = \frac{(2\times12)+7}{12} = \frac{31}{12}$.

L.c.m of 6, 8, 12 is

$6 \mid 6, 8, 12$
$2 \mid 1, 8, 2$
$1, 4, 1$

L.c.m $= 6\times2\times4 = 48$.

$\therefore \frac{47}{6} = \frac{47\times8}{6\times8} = \frac{376}{48}$; $\frac{35\times6}{8\times6} = \frac{210}{48}$ and

$\frac{31}{12} = \frac{31\times4}{12\times4} = \frac{124}{48}$.

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

Solution-09.

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

$= \frac{12}{1} - \frac{(5\times7)+3}{7}$

$= \frac{12\times7}{7} - \frac{38}{7}$

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

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

Solution-10:

Required number = $12\frac{3}{5} - 5\frac{4}{15}$

$= \frac{(12\times5)+3}{5} - \frac{(5\times15)+4}{15}$

$= \frac{63}{5} - \frac{79}{15}$

$= \frac{63\times3}{5\times3} - \frac{79}{15}$

$= \frac{189}{15} - \frac{79}{15}$

$= \frac{110}{15}$

$= \frac{22}{3}$

Solution -11:-

Time divoted for other subjects = Total study time - time divoted for maths and science

$= 5\frac{2}{3} - 2\frac{4}{5}$

$= \frac{(5\times3)+2}{3} - \frac{(2\times5)+4}{5}$

$= \frac{17}{3} - \frac{14}{5}$

$= \frac{17\times5}{3\times5} - \frac{14\times3}{5\times3}$

$= \frac{85-42}{15} = \frac{43}{15} = 2\frac{13}{15}$

Solution-12 :-

length ofother Piece = $12\frac{3}{4} - 5\frac{1}{4}$

$= \frac{(12\times4)+3}{4} - \frac{(5\times4)+1}{4}$

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

$= \frac{30}{4}$

$= \frac{15}{2}$

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

Solution-13 :-

rectangular sheet paper perimeter $= 2\left(12\frac{1}{2} + 10\frac{2}{3}\right)$

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

$= 2\left(\frac{25\times3 + 32\times2}{2\times3}\right)$

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

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

$= \frac{139\times2}{6} = \frac{139}{3}$

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

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

14. Yes, given square is a magic square

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

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

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

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

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

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

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

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

Solution-15:-

cost of Mathematics Book $= 25\frac{3}{4}$

$= \frac{103}{4}$

cost of Science Book $= 20\frac{1}{2} = \frac{20\times 2+1}{2}$

$= \frac{41}{2} = \frac{41\times 2}{2\times 2}$

$= \frac{82}{4}$.

14 cm → we know that.

$103 > 84$.

$\therefore$ 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) $\frac{2}{3} \times \square = \frac{10}{30}$

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

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

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

(ii) $\frac{3}{5} \times \frac{8}{15} = \frac{24}{75}$.

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) $3\frac{1}{8}$ by $*4\frac{10}{11}$.

$$3\frac{1}{8} = \frac{3\times8+1}{8} = \frac{25}{8}$$

$$4\frac{10}{11} = \frac{4\times11+10}{11} = \frac{54}{11}$$

Solution-02:-

(i) $\frac{4}{7} \times \frac{14}{25} = \frac{4\times14}{7\times25} = \frac{56}{175}$

(ii) $7\frac{1}{2} \times 2\frac{4}{15} = \frac{(7\times2)+1}{2} * \frac{(2\times15)+4}{15}$

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

$$= \frac{15\times34}{2\times15}$$

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

$$= 17.$$

(iii) $3\frac{6}{7} \times 4\frac{2}{3} = \frac{27}{7} \times \frac{14}{3}$

$$= \frac{9\times14^{2}}{7} = 9\times2$$

$$= 18$$

2. (iv) $6\frac{11}{14} \times 3\frac{1}{2} = \frac{95}{\cancel{14}_{2}} \times \frac{\cancel{7}^{1}}{2}$

$= \frac{95}{4}$

$= 23\frac{3}{4}$

Solution – 03

(i) $\frac{12}{25} \times \frac{15}{28} \times \frac{35}{36} = \frac{\cancel{12}^{\cancel{3}} \times \cancel{15}^{\cancel{3}} \times \cancel{35}^{\cancel{5}}}{\cancel{25}^{\cancel{5}} \times \cancel{28}^{\cancel{7}} \times \cancel{36}^{\cancel{9}}_{4}}$

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

(ii) $\frac{10}{27} \times \frac{39}{56} \times \frac{28}{65} = \frac{\cancel{10}^{\cancel{5}} \times 39 \times \cancel{28}^{\cancel{2}}}{27 \times \cancel{56}^{\cancel{8}} \times \cancel{65}^{13}}$

$= \frac{\cancel{5} \times 39}{27 \times \cancel{65}^{13}}$

$= \frac{\cancel{39}^{3}}{27 \times \cancel{13}} = \frac{3}{27} = \frac{1}{9}$.

(iii) $2\frac{9}{17} \times 7\frac{2}{9} \times 1\frac{33}{52} = \frac{\cancel{36}^{4}}{17} \times \frac{\cancel{65}^{5}}{\cancel{9}} \times \frac{\cancel{85}^{5}}{\cancel{52}_{4}}$

$= 25$

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

$\frac{1}{2} \times \frac{(4\times9)+2}{9}$.

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

$= 2\frac{1}{9}$

(ii) $\frac{5}{8} \times \frac{(9\times3)+2}{3}$

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

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

(iii) $\frac{2}{3} \times \frac{9}{16}^{3}$

$= \frac{3}{8}$

Solution - 05 :-

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

$\frac{2}{3} \times \frac{3}{7} = \frac{2}{7}$

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

w k t

$3 > 2$

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

Solution-06.

(i) $\frac{1}{11} \times 330 = 1 \times 30 = 210$ Rupees

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

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

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

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

(vi) $\frac{3}{\cancel{2}0} \times \overset{50}{\cancel{1000}}$gm $= 150$ gm

(vii) $\frac{7}{\cancel{2}0} \times \cancel{100}$ ml $= 350$ ml

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

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

Solution-07:

Total spalings in a row = 4.

distance b/w adjacent saplings = $\frac{3}{4}$m

$\therefore$ distance between the first and last sapling
$= \frac{3}{4} \times 4$m $= 3$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

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

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

$= \frac{(2\times5)+1}{5} \times \frac{1}{3}$

$= \frac{11}{15}$

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

Solution-09 :-

Lipika reads a book for $\frac{7}{4}$ hours every day.

Number of hours required to read book

= (No. of days) × (daily reading hours)

$= 6 \times \frac{7}{4}$

$= \frac{42}{4}$

$= 21/2$

$= 10\frac{1}{2}$ hours

Solution - 10 :-

Area of a Rectangular Park = Length × breadth

Given that length $= 41\frac{2}{3}$ m $= \frac{(41\times3)+2}{3} = \frac{125}{3}$ m

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

Rectangular Park Area $= \frac{125}{3} \times \frac{93}{5}$ ^{25} ^{31}

$= 775\ m^2$.

Solution-11 :-

cost per litre → Rs $17\frac{3}{4}$

cost of $7\frac{2}{5}$ litres of Milk $= 7\frac{2}{5} \times$ cost per litre

$= \frac{(35+2)}{5} \times \frac{(17\times4)+3}{4}$

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

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

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

Solution-12 :-

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

distance covers in $2\frac{2}{3}$ hours = $2\frac{2}{5}$ x km per hour

$$= \frac{12}{8} \times \frac{25}{3}$$

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

Sharda covers 20 km in $2\frac{2}{5}$ hours.

Solution-13 :-

Sugar bag capacity = 30 kgs.

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

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

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

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

Sugar Left = Total - sugar consumption

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

$$= 10 \text{ kg}$$

Solution-14:-

we know that,

Area of a square = (length)^2

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

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

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

$= \frac{400}{9}$

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

Solution-15;-

Total no. of students = 45.

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

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

$= 3 \times 9$

$= 27$ boys

$\therefore$ Girls in the class = Total - 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. iv $6\frac{1}{4} \div 2\frac{3}{5}$

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

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

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

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

Solution - 03:-

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

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

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

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

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

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

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

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

$= \frac{13 \times 3 \times 10}{7 \times 13}$

$= \frac{30}{7}$

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

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

$= \frac{4}{1} \times \frac{5}{12_3}$

$= \frac{5}{3}$

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

Solution-05:

Given that,

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

No. of pieces $= 10.$

length of each piece $= \frac{25}{2} \div \frac{10}{1}$

$= \frac{25}{2} \times \frac{1}{10_2}$

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

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

Solution-06:

W.K.T rectangular plot Area = length × width

Gli Area $= 65\frac{1}{3}\,m^2 = \frac{196}{3}\,m^2$

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

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

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

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

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

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 = $400 \div 6\frac{1}{4}$

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

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

$= 16 \times 4$

$=$ RS 64.

Solution - 10:-

Total cost = 630.

dozen cost = 12 x each orange cost

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

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

$= 3 \times 21 = 63.$

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

$= \frac{630}{63}$

= 10 dozens

Solution-11:-

Quantity of milk to student = $\frac{3}{10}$ litre.

No. of students = 9.

Total milk = 30 litres

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

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

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

= 100 students

30 litres of milk distributes to 100 students every day.

Solution -12:

each ticket cost = Rs $50\frac{3}{4}$

No. of tickets = $\frac{\text{Total amount}}{\text{Ticket cost}}$

Total amount = Rs 6496

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

$= \frac{6496^{32} \times 4}{203}$

= 128.

∴ 128 Tickets were sold