

Fractions

Exercise 2A

Solution 01

Answer :

We have the following:

(i) 58 and 712

By cross multiplication, we get:

$$5 \times 12 = 60 \text{ and } 7 \times 8 = 56$$

However, $60 > 56$

$$\therefore 58 > 712$$

(ii) 59 and 1115

By cross multiplication, we get:

$$5 \times 15 = 75 \text{ and } 9 \times 11 = 99$$

However, $75 < 99$

$$\therefore 59 < 1115$$

(iii) 1112 and 1516

By cross multiplication, we get:

$$11 \times 16 = 176 \text{ and } 12 \times 15 = 180$$

However, $176 < 180$

$$\therefore 1112 < 1516$$

Answer :

(i) The given fractions are $\frac{3}{4}$, $\frac{5}{6}$, $\frac{7}{9}$ and $\frac{11}{12}$.

LCM of 4, 6, 9 and 12 = 36

Now, let us change each of the given fractions into an equivalent fraction with 72 as its denominator.

$$\frac{3}{4} = \frac{3 \times 9}{4 \times 9} = \frac{27}{36}$$

$$\frac{5}{6} = \frac{5 \times 6}{6 \times 6} = \frac{30}{36}$$

$$\frac{7}{9} = \frac{7 \times 4}{9 \times 4} = \frac{28}{36}$$

$$\frac{11}{12} = \frac{11 \times 3}{12 \times 3} = \frac{33}{36}$$

Clearly, $\frac{27}{36} < \frac{28}{36} < \frac{30}{36} < \frac{33}{36}$

Hence, $\frac{3}{4} < \frac{7}{9} < \frac{5}{6} < \frac{11}{12}$

\therefore The given fractions in ascending order are $\frac{3}{4}$, $\frac{7}{9}$, $\frac{5}{6}$ and $\frac{11}{12}$.

(ii) The given fractions are: $\frac{4}{5}$, $\frac{7}{10}$, $\frac{11}{15}$ and $\frac{17}{20}$.

LCM of 5, 10, 15 and 20 = 60

Now, let us change each of the given fractions into an equivalent fraction with 60 as its denominator.

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

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

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

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

Clearly, $\frac{42}{60} < \frac{44}{60} < \frac{48}{60} < \frac{51}{60}$

Hence, $\frac{7}{10} < \frac{11}{15} < \frac{4}{5} < \frac{17}{20}$

∴ The given fractions in ascending order are $\frac{7}{10}$, $\frac{11}{15}$, $\frac{4}{5}$ and $\frac{17}{20}$.

Solution 03

Answer :

We have the following:

(i) The given fractions are $\frac{3}{4}$, $\frac{7}{8}$, $\frac{7}{12}$ and $\frac{17}{24}$.

LCM of 4, 8, 12 and 24 = 24

Now, let us change each of the given fractions into an equivalent fraction with 24 as its denominator.

$$\frac{3}{4} = \frac{3 \times 6}{4 \times 6} = \frac{18}{24}$$

$$\frac{7}{8} = \frac{7 \times 3}{8 \times 3} = \frac{21}{24}$$

$$\frac{7}{12} = \frac{7 \times 2}{12 \times 2} = \frac{14}{24}$$

$$\frac{17}{24} = \frac{17 \times 1}{24 \times 1} = \frac{17}{24}$$

Clearly, $\frac{21}{24} > \frac{18}{24} > \frac{17}{24} > \frac{14}{24}$

Hence, $\frac{7}{8} > \frac{3}{4} > \frac{17}{24} > \frac{7}{12}$

∴ The given fractions in descending order are $\frac{7}{8}$, $\frac{3}{4}$, $\frac{17}{24}$ and $\frac{7}{12}$.

(ii) The given fractions are $\frac{2}{3}$, $\frac{3}{5}$, $\frac{7}{10}$ and $\frac{8}{15}$.

LCM of 3, 5, 10 and 15 = 30

Now, let us change each of the given fractions into an equivalent fraction with 30 as its denominator.

$$\frac{2}{3} = \frac{2 \times 10}{3 \times 10} = \frac{20}{30}$$

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

$$\frac{7}{10} = \frac{7 \times 3}{10 \times 3} = \frac{21}{30}$$

$$\frac{8}{15} = \frac{8 \times 2}{15 \times 2} = \frac{16}{30}$$

$$\text{Clearly, } \frac{21}{30} > \frac{20}{30} > \frac{18}{30} > \frac{16}{30}$$

$$\text{Hence, } \frac{7}{10} > \frac{2}{3} > \frac{3}{5} > \frac{8}{15}$$

\therefore The given fractions in descending order are $\frac{7}{10}$, $\frac{2}{3}$, $\frac{3}{5}$ and $\frac{8}{15}$.

Solution 04

Answer :

We will compare the given fractions $\frac{2}{7}$ and $\frac{4}{5}$ in order to know who got the larger part of the apple.

We have,

By cross multiplication, we get:

$$2 \times 5 = 10 \text{ and } 4 \times 7 = 28$$

However, $10 < 28$

$$\therefore \frac{2}{7} < \frac{4}{5}$$

Thus, Sonal got the larger part of the apple.

$$\text{Now, } \frac{4}{5} - \frac{2}{7} = \frac{28-10}{35} = \frac{18}{35}$$

\therefore Sonal got $\frac{18}{35}$ part of the apple more than Reenu.

Solution 05

Answer :

$$(i) \frac{5}{9} + \frac{3}{9} = \frac{8}{9}$$

$$(ii) \frac{8}{9} + \frac{7}{12}$$

$$= \frac{32}{36} + \frac{21}{36} \quad [\because \text{LCM of 9 and 12} = 36]$$

$$= \frac{32+21}{36}$$

$$= \frac{53}{36} = 1 \frac{17}{36}$$

$$(iii) \frac{5}{6} + \frac{7}{8}$$

$$= \frac{20}{24} + \frac{21}{24} \quad [\because \text{LCM of 6 and 8} = 24]$$

$$= \frac{20+21}{24}$$

$$= \frac{41}{24} = 1 \frac{17}{24}$$

$$(iv) \frac{7}{12} + \frac{11}{16} + \frac{9}{24}$$

$$\frac{28}{48} + \frac{33}{48} + \frac{18}{48} \quad [\because \text{LCM of 12, 16 and 24} = 48]$$

$$= \frac{28+33+18}{48}$$

$$= \frac{79}{48} = 1 \frac{31}{48}$$

$$\begin{aligned}
 \text{(v)} \quad & 3\frac{4}{5} + 2\frac{3}{10} + 1\frac{1}{15} \\
 &= \frac{19}{5} + \frac{23}{10} + \frac{16}{15} \\
 &= \frac{114}{30} + \frac{69}{30} + \frac{32}{30} \quad [\because \text{LCM of 5, 10 and 15} = 30] \\
 &= \frac{114+69+32}{30} \\
 &= \frac{215}{30} = 7\frac{5}{30} = 7\frac{1}{6}
 \end{aligned}$$

$$\begin{aligned}
 \text{(vi)} \quad & 8\frac{3}{4} + 10\frac{2}{5} \\
 &= \frac{35}{4} + \frac{52}{5} \\
 &= \frac{175}{20} + \frac{208}{20} \quad [\because \text{LCM of 4 and 5} = 20] \\
 &= \frac{175+208}{20} \\
 &= \frac{383}{20} = 19\frac{3}{20}
 \end{aligned}$$

Solution 06

Answer :

$$\text{(i)} \quad \frac{5}{7} - \frac{2}{7} = \frac{5-2}{7} = \frac{3}{7}$$

$$\begin{aligned}
 \text{(ii)} \quad & \frac{5}{6} - \frac{3}{4} \\
 &= \frac{10}{12} - \frac{9}{12} \quad [\because \text{LCM of 6 and 4} = 12] \\
 &= \frac{10-9}{12} \\
 &= \frac{1}{12}
 \end{aligned}$$

$$\begin{aligned}
 \text{(iii)} \quad & 3\frac{1}{5} - \frac{7}{10} \\
 &= \frac{16}{5} - \frac{7}{10} \\
 &= \frac{32}{10} - \frac{7}{10} \quad [\because \text{LCM of 5 and 10} = 10] \\
 &= \frac{32-7}{10} \\
 &= \frac{25}{10} = \frac{5}{2} = 2\frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 \text{(iv)} \quad & 7 - 4\frac{2}{3} \\
 &= \frac{7}{1} - \frac{14}{3} \\
 &= \frac{21-14}{3} \quad [\because \text{LCM of 1 and 3} = 3] \\
 &= \frac{7}{3} = 2\frac{1}{3}
 \end{aligned}$$

$$\begin{aligned}
 \text{(v)} \quad & 3\frac{3}{10} - 1\frac{7}{15} \\
 &= \frac{33}{10} - \frac{22}{15} \\
 &= \frac{99-44}{30} \quad [\because \text{LCM of 10 and 15} = 30] \\
 &= \frac{55}{30} = \frac{11}{6} = 1\frac{5}{6}
 \end{aligned}$$

$$\begin{aligned}
 \text{(vi)} \quad & 2\frac{5}{9} - 1\frac{7}{15} \\
 &= \frac{23}{9} - \frac{22}{15} \\
 &= \frac{115-66}{45} \quad [\because \text{LCM of 9 and 15} = 45] \\
 &= \frac{49}{45} = 1\frac{4}{45}
 \end{aligned}$$

Solution 07

Answer :

$$\begin{aligned}
 \text{(i)} \quad & \frac{2}{3} + \frac{5}{6} - \frac{1}{9} \\
 &= \frac{12+15-2}{18} \quad [\because \text{LCM of 3, 6 and 9} = 18] \\
 &= \frac{27-2}{18} = \frac{25}{18} = 1\frac{7}{18}
 \end{aligned}$$

$$\begin{aligned}
 \text{(ii)} \quad & 8 - 4\frac{1}{2} - 2\frac{1}{4} \\
 &= \frac{8}{1} - \frac{9}{2} - \frac{9}{4} \\
 &= \frac{32-18-9}{4} \quad [\because \text{LCM of 1, 2 and 4} = 4] \\
 &= \frac{32-27}{4} = \frac{5}{4} = 1\frac{1}{4}
 \end{aligned}$$

$$\begin{aligned}
 \text{(iii)} \quad & 8\frac{5}{6} - 3\frac{3}{8} + 1\frac{7}{12} \\
 &= \frac{53}{6} - \frac{27}{8} + \frac{19}{12} \\
 &= \frac{212-81+38}{24} \quad [\because \text{LCM of 6, 8 and 12} = 24] \\
 &= \frac{250-81}{24} = \frac{169}{24} = 7\frac{1}{24}
 \end{aligned}$$

Solution 08

Answer :

Total weight of fruits bought by Aneeta = $\left(3\frac{3}{4} + 4\frac{1}{2}\right)$ kg

Now, we have:

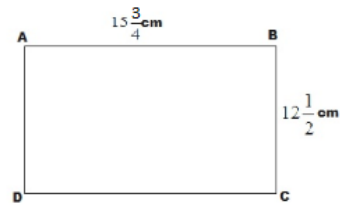
$$\begin{aligned}
 3\frac{3}{4} + 4\frac{1}{2} &= \frac{15}{4} + \frac{9}{2} \\
 &= \frac{15+18}{4} \quad [\because \text{LCM of 2 and 4} = 4] \\
 &= \frac{15+18}{4} = \frac{33}{4} = 8\frac{1}{4}
 \end{aligned}$$

Hence, the total weight of the fruits purchased by Aneeta is $8\frac{1}{4}$ kg.

Solution 09

Answer :

We have:



Perimeter of the rectangle ABCD = AB + BC + CD + DA

$$\begin{aligned} &= \left(15\frac{3}{4} + 12\frac{1}{2} + 15\frac{3}{4} + 12\frac{1}{2} \right) \text{ cm} \\ &= \left(\frac{63}{4} + \frac{25}{2} + \frac{63}{4} + \frac{25}{2} \right) \text{ cm} \\ &= \left(\frac{63+50+63+50}{4} \right) \text{ cm} \quad [\because \text{LCM of 2 and 4} = 4] \\ &= \left(\frac{226}{4} \right) \text{ cm} = \left(\frac{113}{2} \right) \text{ cm} = 56\frac{1}{2} \text{ cm} \end{aligned}$$

Hence, the perimeter of ABCD is $56\frac{1}{2}$ cm.

Solution 10

Answer :

Actual width of the picture = $7\frac{3}{5}$ cm = $\frac{38}{5}$ cm

Required width of the picture = $7\frac{3}{10}$ cm = $\frac{73}{10}$ cm

$$\begin{aligned} \therefore \text{Extra width} &= \left(\frac{38}{5} - \frac{73}{10} \right) \text{ cm} \\ &= \left(\frac{76-73}{10} \right) \text{ cm} \quad [\because \text{LCM of 5 and 10 is 10}] \\ &= \frac{3}{10} \text{ cm} \end{aligned}$$

Hence, the width of the picture should be trimmed by $\frac{3}{10}$ cm.

Solution 11

Answer :

Required number to be added = $18 - 7\frac{3}{5}$

$$\begin{aligned} &= \frac{18}{1} - \frac{38}{5} \\ &= \frac{90-38}{5} \quad [\because \text{LCM of 1 and 5} = 5] \\ &= \frac{52}{5} = 10\frac{2}{5} \end{aligned}$$

Hence, the required number is $10\frac{2}{5}$.

Solution 12

Answer :

Required number to be added = $8\frac{2}{5} - 7\frac{4}{15}$

$$\begin{aligned} &= \frac{42}{5} - \frac{109}{15} \\ &= \frac{126-109}{15} \quad [\because \text{LCM of 5 and 15} = 15] \\ &= \frac{17}{15} = 1\frac{2}{15} \end{aligned}$$

Hence, the required number should be $1\frac{2}{15}$.

Solution 13

Answer :

$$\begin{aligned}\text{Required length of other piece of wire} &= \left(3\frac{3}{4} - 1\frac{1}{2}\right)\text{m} \\ &= \left(\frac{15}{4} - \frac{3}{2}\right)\text{m} \\ &= \left(\frac{15-6}{4}\right)\text{m} \quad [\because \text{LCM of 4 and 2} = 4] \\ &= \frac{9}{4}\text{m} = 2\frac{1}{4}\text{m}\end{aligned}$$

Hence, the length of the other piece of wire is $2\frac{1}{4}\text{m}$.

Solution 14

Answer :

$$\begin{aligned}\text{Actual duration of the film} &= \left(3\frac{2}{3} - 1\frac{1}{2}\right)\text{hours} \\ &= \left(\frac{11}{3} - \frac{3}{2}\right)\text{hours} \\ &= \left(\frac{22-9}{6}\right)\text{hours} \quad [\because \text{LCM of 3 and 2} = 6] \\ &= \frac{13}{6}\text{hours} = 2\frac{1}{6}\text{hours}\end{aligned}$$

Hence, the actual duration of the film was $2\frac{1}{6}\text{hours}$.

Solution 15

Answer :

First we have to compare the fractions: $\frac{2}{3}$ and $\frac{5}{9}$.

By cross multiplication, we have:

$$2 \times 9 = 18 \text{ and } 5 \times 3 = 15$$

However, $18 > 15$

$$\therefore \frac{2}{3} > \frac{5}{9}$$

So, $\frac{2}{3}$ is larger than $\frac{5}{9}$.

$$\text{Now, } \frac{2}{3} - \frac{5}{9}$$

$$\begin{aligned}&= \frac{6-5}{9} \quad [\because \text{LCM of 3 and 9} = 9] \\ &= \frac{1}{9}\end{aligned}$$

Hence, $\frac{2}{3}$ is $\frac{1}{9}$ part more than $\frac{5}{9}$.

Solution 16

Answer :

First, we have to compare the cost of the pen and the pencil.

$$\text{Cost of the pen} = \text{Rs } 16\frac{3}{5} = \text{Rs } \frac{83}{5}$$

$$\text{Cost of the pencil} = \text{Rs } 4\frac{3}{4} = \text{Rs } \frac{19}{4}$$

Now, we have to compare fractions $\frac{83}{5}$ and $\frac{19}{4}$.

By cross multiplication, we get:

$$83 \times 4 = 332 \text{ and } 19 \times 5 = 95$$

However, $332 > 95$

$$\therefore \frac{83}{5} > \frac{19}{4}$$

So, the cost of pen is more than that of the pencil.

$$\text{Now, Rs } \left(\frac{83}{5} - \frac{19}{4} \right)$$

$$= \text{Rs } \left(\frac{332 - 95}{20} \right) \quad [\because \text{LCM of 4 and 5} = 20]$$

$$= \text{Rs } \frac{237}{20} = \text{Rs } 11\frac{17}{20}$$

\therefore The pen costs Rs $11\frac{17}{20}$ more than the pencil.

Fractions

Exercise 2B

solution 01

Answer :

$$(i) \frac{3}{5} \times \frac{7}{11} = \frac{3 \times 7}{5 \times 11} = \frac{21}{55}$$

$$(ii) \frac{5}{8} \times \frac{4}{7} = \frac{5 \times 4}{8 \times 7} = \frac{5 \times 1}{2 \times 7} = \frac{5}{14}$$

$$(iii) \frac{4}{9} \times \frac{15}{16} = \frac{4 \times 15}{9 \times 16} = \frac{1 \times 5}{3 \times 4} = \frac{5}{12}$$

$$(iv) \frac{2}{5} \times 15 = \frac{2}{5} \times \frac{15}{1} = \frac{2 \times 15}{5 \times 1} = \frac{2 \times 3}{1 \times 1} = 6$$

$$(v) \frac{8}{15} \times 20 = \frac{8}{15} \times \frac{20}{1} = \frac{8 \times 20}{15 \times 1} = \frac{8 \times 4}{3 \times 1} = \frac{32}{3} = 10 \frac{2}{3}$$

$$(vi) \frac{5}{8} \times 1000 = \frac{5}{8} \times \frac{1000}{1} = \frac{5 \times 1000}{8 \times 1} = \frac{5 \times 125}{1 \times 1} = 625$$

$$(vii) 3 \frac{1}{8} \times 16 = \frac{25}{8} \times \frac{16}{1} = \frac{25 \times 16}{8 \times 1} = \frac{25 \times 2}{1 \times 1} = 50$$

$$(viii) 2 \frac{4}{15} \times 12 = \frac{34}{15} \times \frac{12}{1} = \frac{34 \times 12}{15 \times 1} = \frac{34 \times 4}{5 \times 1} = \frac{136}{5} = 27 \frac{1}{5}$$

$$(ix) 3 \frac{6}{7} \times 4 \frac{2}{3} = \frac{27}{7} \times \frac{14}{3} = \frac{27 \times 14}{7 \times 3} = \frac{9 \times 2}{1 \times 1} = 18$$

$$(x) 9 \frac{1}{2} \times 1 \frac{9}{19} = \frac{19}{2} \times \frac{28}{19} = \frac{19 \times 28}{2 \times 19} = \frac{1 \times 14}{1 \times 1} = 14$$

$$(xi) 4 \frac{1}{8} \times 2 \frac{10}{11} = \frac{33}{8} \times \frac{32}{11} = \frac{33 \times 32}{8 \times 11} = \frac{3 \times 4}{1 \times 1} = 12$$

$$(xii) 5 \frac{5}{6} \times 1 \frac{5}{7} = \frac{35}{6} \times \frac{12}{7} = \frac{35 \times 12}{6 \times 7} = \frac{5 \times 2}{1 \times 1} = 10$$

solution 02

Answer :

We have the following:

$$(i) \frac{2}{3} \times \frac{5}{44} \times \frac{33}{35} = \frac{2 \times 5 \times 33}{3 \times 44 \times 35} = \frac{1 \times 1 \times 11}{1 \times 22 \times 7} = \frac{1 \times 1 \times 1}{1 \times 2 \times 7} = \frac{1}{14}$$

$$(ii) \frac{12}{25} \times \frac{15}{28} \times \frac{35}{36} = \frac{1 \times 3 \times 5}{5 \times 4 \times 3} = \frac{1 \times 1 \times 1}{1 \times 4 \times 1} = \frac{1}{4}$$

$$(iii) \frac{10}{27} \times \frac{28}{65} \times \frac{39}{56} = \frac{10 \times 1 \times 3}{27 \times 5 \times 2} = \frac{1 \times 1 \times 3}{27 \times 1 \times 1} = \frac{3}{27} = \frac{1}{9}$$

$$(iv) 1\frac{4}{7} \times 1\frac{13}{22} \times 1\frac{1}{15} \\ = \frac{11}{7} \times \frac{35}{22} \times \frac{16}{15} = \frac{11 \times 35 \times 16}{7 \times 22 \times 15} = \frac{1 \times 5 \times 16}{1 \times 2 \times 15} = \frac{1 \times 1 \times 8}{1 \times 1 \times 3} = \frac{8}{3} = 2\frac{2}{3}$$

$$(v) 2\frac{2}{17} \times 7\frac{2}{9} \times 1\frac{33}{52} \\ = \frac{36}{17} \times \frac{65}{9} \times \frac{85}{52} = \frac{36 \times 65 \times 85}{17 \times 9 \times 52} = \frac{4 \times 5 \times 5}{1 \times 1 \times 4} = \frac{1 \times 5 \times 5}{1 \times 1 \times 1} = 25$$

$$(vi) 3\frac{1}{16} \times 7\frac{3}{7} \times 1\frac{25}{39} \\ = \frac{49}{16} \times \frac{52}{7} \times \frac{64}{39} = \frac{7 \times 4 \times 4}{1 \times 1 \times 3} = \frac{112}{3} = 37\frac{1}{3}$$

solution 03

Answer :

We have the following:

$$(i) \frac{1}{3} \text{ of } 24 = 24 \times \frac{1}{3} = \frac{24}{1} \times \frac{1}{3} = \frac{24 \times 1}{1 \times 3} = 8$$

$$(ii) \frac{3}{4} \text{ of } 32 = 32 \times \frac{3}{4} = \frac{32}{1} \times \frac{3}{4} = \frac{32 \times 3}{1 \times 4} = \frac{8 \times 3}{1 \times 1} = 24$$

$$(iii) \frac{5}{9} \text{ of } 45 = 45 \times \frac{5}{9} = \frac{45}{1} \times \frac{5}{9} = \frac{45 \times 5}{1 \times 9} = \frac{5 \times 5}{1 \times 1} = 25$$

$$(iv) \frac{7}{50} \text{ of } 1000 = 1000 \times \frac{7}{50} = \frac{1000}{1} \times \frac{7}{50} = \frac{20 \times 7}{1 \times 1} = 140$$

$$(v) \frac{3}{20} \text{ of } 1020 = 1020 \times \frac{3}{20} = \frac{1020}{1} \times \frac{3}{20} = \frac{51 \times 3}{1 \times 1} = 153$$

$$(vi) \frac{5}{11} \text{ of Rs } 220 = \text{Rs } \left(220 \times \frac{5}{11}\right) = \text{Rs } (20 \times 5) = \text{Rs } 100$$

$$(vii) \frac{4}{9} \text{ of } 54 \text{ m} = \left(\frac{4}{9} \times 54\right) \text{m} = (4 \times 6) \text{ m} = 24 \text{ m}$$

$$(viii) \frac{6}{7} \text{ of } 35 \text{ L} = \left(\frac{6}{7} \times 35\right) \text{L} = (6 \times 5) \text{ L} = 30 \text{ L}$$

$$(ix) \frac{1}{6} \text{ of } 1 \text{ h} = \frac{1}{6} \text{ of } 60 \text{ min} = \left(60 \times \frac{1}{6}\right) \text{ min} = 10 \text{ min}$$

$$(x) \frac{5}{6} \text{ of an year} = \frac{5}{6} \text{ of } 12 \text{ months} = \left(12 \times \frac{5}{6}\right) \text{ months} = (2 \times 5) \text{ months} = 10 \text{ months}$$

$$(xi) \frac{7}{20} \text{ of a kg} = \frac{7}{20} \text{ of } 1000 \text{ g} = \left(1000 \times \frac{7}{20}\right) \text{ g} = (50 \times 7) \text{ gm} = 350 \text{ g}$$

$$(xii) \frac{9}{20} \text{ of } 1 \text{ m} = \frac{9}{20} \text{ of } 100 \text{ cm} = \left(100 \times \frac{9}{20}\right) \text{ cm} = (5 \times 9) \text{ cm} = 45 \text{ cm}$$

$$(xiii) \frac{7}{8} \text{ of a day} = \frac{7}{8} \text{ of } 24 \text{ h} = \left(24 \times \frac{7}{8}\right) \text{ h} = (3 \times 7) = 21 \text{ h}$$

$$(xiv) \frac{3}{7} \text{ of a week} = \frac{3}{7} \text{ of } 7 \text{ days} = \left(7 \times \frac{3}{7}\right) \text{ days} = 3 \text{ days}$$

$$(xv) \frac{7}{50} \text{ of } 1 \text{ L} = \frac{7}{50} \text{ of } 1000 \text{ ml} = \left(1000 \times \frac{7}{50}\right) \text{ ml} = (20 \times 7) \text{ ml} = 140 \text{ ml}$$

solution 04

Answer :

$$\text{Cost of 1 kg of apples} = \text{Rs } 18 \frac{2}{5} = \text{Rs } \frac{92}{5}$$

$$\begin{aligned}\therefore \text{Cost of } 3 \frac{3}{4} \text{ kg of apples} &= \text{Rs } \left(\frac{92}{5} \times 3 \frac{3}{4} \right) \\ &= \text{Rs } \left(\frac{92}{5} \times \frac{15}{4} \right) = \text{Rs } \left(\frac{23 \times 3}{1 \times 1} \right) = \text{Rs } 69\end{aligned}$$

Hence, the cost of $3 \frac{3}{4}$ kg of apples is Rs 69.

solution 05

Answer :

$$\text{Cost of 1 m of cloth} = \text{Rs } 42 \frac{1}{2} = \text{Rs } \frac{85}{2}$$

$$\begin{aligned}\therefore \text{Cost of } 5 \frac{3}{5} \text{ m of cloth} &= \text{Rs } \left(\frac{85}{2} \times 5 \frac{3}{5} \right) \\ &= \text{Rs } \left(\frac{85}{2} \times \frac{28}{5} \right) = \text{Rs } \left(\frac{85 \times 28}{2 \times 5} \right) = \text{Rs } (17 \times 14) = \text{Rs } 238\end{aligned}$$

Hence, the cost of $5 \frac{3}{5}$ m of cloth is Rs 238.

solution 06

Answer :

$$\text{Distance covered by the car in 1 h} = 66 \frac{2}{3} \text{ km}$$

$$\begin{aligned}\text{Distance covered by the car in 9 h} &= \left(66 \frac{2}{3} \times 9 \right) \text{ km} \\ &= \left(\frac{200}{3} \times 9 \right) \text{ km} = \left(\frac{200 \times 9}{3 \times 1} \right) \text{ km} = (200 \times 3) \text{ km} = 600 \text{ km}\end{aligned}$$

Hence, the distance covered by the car in 9 h will be 600 km.

solution 07

Answer :

$$\text{Capacity of 1 tin} = 12 \frac{3}{4} \text{ L} = \frac{51}{4} \text{ L}$$

$$\begin{aligned}\therefore \text{Capacity of 26 such tins} &= \left(26 \times \frac{51}{4} \right) \text{ L} \\ &= \left(\frac{26}{1} \times \frac{51}{4} \right) \text{ L} = \left(\frac{26 \times 51}{1 \times 4} \right) \text{ L} = \left(\frac{13 \times 51}{1 \times 2} \right) \text{ L} = \left(\frac{663}{2} \right) \text{ L} = 331 \frac{1}{2} \text{ L}\end{aligned}$$

Hence, 26 such tins can hold $331 \frac{1}{2}$ L of oil.

solution 08

Answer :

$$\text{Cost of 1 ticket} = \text{Rs } 35 \frac{1}{2} = \text{Rs } \frac{71}{2}$$

$$\therefore \text{Cost of 308 tickets} = \text{Rs } \left(\frac{71}{2} \times 308 \right) = \text{Rs } \left(\frac{71}{2} \times \frac{308}{1} \right) = \text{Rs } (71 \times 154) = \text{Rs } 10934$$

Hence, 308 tickets were sold for Rs 10,934.

solution 09

Answer :

$$\text{Thickness of 1 board} = 3 \frac{2}{3} \text{ cm}$$

$$\begin{aligned}\therefore \text{Thickness of 9 boards} &= \left(9 \times 3 \frac{2}{3} \right) \text{ cm} \\ &= \left(\frac{9}{1} \times \frac{11}{3} \right) \text{ cm} = (3 \times 11) \text{ cm} = 33 \text{ cm}\end{aligned}$$

Hence, the height of the stack is 33 cm.

solution 10

Answer :

$$\text{Time taken by Rohit to complete one round of the circular park} = 4 \frac{4}{5} \text{ min} = \frac{24}{5} \text{ min}$$

$$\begin{aligned}\therefore \text{Time taken to complete 15 rounds} &= \left(15 \times \frac{24}{5} \right) \text{ min} \\ &= (3 \times 24) \text{ min} \\ &= 72 \text{ min} \\ &= 1 \text{ h } 12 \text{ min} \quad [\because 1 \text{ hr} = 60 \text{ min}]\end{aligned}$$

Hence, Rohit will take 1 h 12 min to make 15 complete rounds of the circular park.

solution 11

Answer :

Weight of Amit = 35 kg

Weight of Kavita = $\frac{3}{5}$ of Amit's weight

$$= 35 \text{ kg} \times \frac{3}{5} = \left(35 \times \frac{3}{5}\right) \text{ kg} = (7 \times 3) \text{ kg} = 21 \text{ kg}$$

Hence, Kavita's weight is 21 kg.

solution 12

Answer :

Number of boys in the class = $\frac{5}{7}$ of the total no. of students

$$= \frac{5}{7} \times 42 = \left(\frac{5 \times 42}{7}\right) = 5 \times 6 = 30$$

$$\therefore \text{Number of girls in the class} = 42 - 30 = 12$$

Hence, there are 12 girls in the class.

solution 13

Answer :

Sapna's total monthly income = Rs 12000

Monthly expenditure = $\frac{7}{8}$ of Rs 12000

$$= \text{Rs} \left(\frac{7}{8} \times 12000\right) = \text{Rs} (7 \times 1500) = \text{Rs} 10500$$

$$\therefore \text{Monthly savings} = \text{Rs } 12000 - \text{Rs } 10500 \\ = \text{Rs } 1500$$

Hence, Sapna deposits Rs 1500 in the bank every month.

solution 14

Answer :

Side of the square field = $4\frac{2}{3} \text{ m}$

\therefore Area of the square = $(\text{side})^2$

$$= \left(4\frac{2}{3} \text{ m}\right)^2$$

$$= \left(\frac{14}{3} \text{ m}\right)^2 = \frac{14}{3} \text{ m} \times \frac{14}{3} \text{ m} = \left(\frac{14 \times 14}{3 \times 3}\right) \text{ m}^2 = \frac{196}{9} \text{ m}^2 = 21\frac{7}{9} \text{ m}^2$$

Hence, the area of the square field is $21\frac{7}{9} \text{ m}^2$.

Solution 15

Answer :

Length of the rectangular park = $41\frac{2}{3} \text{ m} = \frac{125}{3} \text{ m}$

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

\therefore Its area = length \times breadth

$$= \left(\frac{125}{3} \times \frac{93}{5}\right) \text{ m}^2$$

$$= (25 \times 31) \text{ m} = 775 \text{ m}^2$$

Hence, the area of the rectangular park is 775 m^2 .

Fractions

Exercise 2C

01

Answer :

(i) Reciprocal of $\frac{5}{8} = \frac{8}{5}$ [$\because \frac{5}{8} \times \frac{8}{5} = 1$]

(ii) Reciprocal of $7 = \frac{1}{7}$ [$\because 7 \times \frac{1}{7} = 1$]

(iii) Reciprocal of $\frac{1}{12} = 12$ [$\because \frac{1}{12} \times 12 = 1$]

(iv) Reciprocal of $12\frac{3}{5} = \text{Reciprocal of } \frac{63}{5} = \frac{5}{63}$ [$\because \frac{63}{5} \times \frac{5}{63} = 1$]

02

Answer :

(i) $\frac{4}{7} \div \frac{9}{14} = \frac{4}{7} \times \frac{14}{9}$ [$\because \text{Reciprocal of } \frac{9}{14} = \frac{14}{9}$]
 $= \frac{8}{9}$

(ii) $\frac{7}{10} \div \frac{3}{5} = \frac{7}{10} \times \frac{5}{3}$ [$\because \text{Reciprocal of } \frac{3}{5} = \frac{5}{3}$]
 $= \frac{7}{6} = 1\frac{1}{6}$

(iii) $\frac{8}{9} \div 16 = \frac{8}{9} \times \frac{1}{16}$ [$\because \text{Reciprocal of } 16 = \frac{1}{16}$]
 $= \frac{1}{18}$

$$(iv) 9 \div \frac{1}{3} = 9 \times 3 \quad [\because \text{Reciprocal of } \frac{1}{3} = 3]$$

$$= 27$$

$$(v) 24 \div \frac{6}{7} = 24 \times \frac{7}{6} \quad [\because \text{Reciprocal of } \frac{6}{7} = \frac{7}{6}]$$

$$= 4 \times 7 = 28$$

$$(vi) 3\frac{3}{5} \div \frac{4}{5} = \frac{18}{5} \div \frac{4}{5}$$

$$= \frac{18}{5} \times \frac{5}{4} \quad [\because \text{Reciprocal of } \frac{4}{5} = \frac{5}{4}]$$

$$= \frac{18}{4} = \frac{9}{2} = 4\frac{1}{2}$$

$$(vii) 3\frac{3}{7} \div \frac{8}{21} = \frac{24}{7} \div \frac{8}{21}$$

$$= \frac{24}{7} \times \frac{21}{8} \quad [\because \text{Reciprocal of } \frac{8}{21} = \frac{21}{8}]$$

$$= 3 \times 3 = 9$$

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

$$= \frac{39}{7} \times \frac{10}{13} \quad [\because \text{Reciprocal of } \frac{13}{10} = \frac{10}{13}]$$

$$= \frac{30}{7} = 4\frac{2}{7}$$

$$(ix) 15\frac{3}{7} \div 1\frac{23}{49} = \frac{108}{7} \div \frac{72}{49}$$

$$= \frac{108}{7} \times \frac{49}{72} \quad [\because \text{Reciprocal of } \frac{72}{49} = \frac{49}{72}]$$

$$= \frac{9 \times 7}{1 \times 6} = \frac{3 \times 7}{1 \times 2} = \frac{21}{2} = 10\frac{1}{2}$$

03

Answer :

$$(i) \frac{11}{24} \div \frac{7}{8}$$

$$= \frac{11}{24} \times \frac{8}{7} \quad [\because \text{Reciprocal of } \frac{7}{8} = \frac{8}{7}]$$

$$= \frac{11}{21}$$

$$(ii) 6\frac{7}{8} \div \frac{11}{16} = \frac{55}{8} \div \frac{11}{16}$$

$$= \frac{55}{8} \times \frac{16}{11} \quad [\because \text{Reciprocal of } \frac{11}{16} = \frac{16}{11}]$$

$$= 5 \times 2 = 10$$

$$(iii) 5\frac{5}{9} \div 3\frac{1}{3} = \frac{50}{9} \div \frac{10}{3}$$

$$= \frac{50}{9} \times \frac{3}{10} \quad [\because \text{Reciprocal of } \frac{10}{3} = \frac{3}{10}]$$

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

$$(iv) 32 \div 1\frac{3}{5} = 32 \div \frac{8}{5}$$

$$= 32 \times \frac{5}{8} \quad [\because \text{Reciprocal of } \frac{8}{5} = \frac{5}{8}]$$

$$= 4 \times 5 = 20$$

$$(v) 45 \div 1\frac{4}{5} = 45 \div \frac{9}{5}$$

$$= 45 \times \frac{5}{9} \quad [\because \text{Reciprocal of } \frac{9}{5} = \frac{5}{9}]$$

$$= 5 \times 5 = 25$$

$$(vi) 63 \div 2\frac{1}{4} = 63 \div \frac{9}{4}$$

$$= 63 \times \frac{4}{9} \quad [\because \text{Reciprocal of } \frac{9}{4} = \frac{4}{9}]$$

$$= 7 \times 4 = 28$$

04

Answer :

Length of the rope = $13\frac{1}{2}$ m = $\frac{27}{2}$ m

Number of equal pieces = 9

$$\begin{aligned} \therefore \text{Length of each piece} &= \left(\frac{27}{2} \div 9 \right) \text{ m} \\ &= \left(\frac{27}{2} \times \frac{1}{9} \right) \text{ m} \quad [\because \text{Reciprocal of } 9 = \frac{1}{9}] \\ &= \frac{3}{2} \text{ m} = 1\frac{1}{2} \text{ m} \end{aligned}$$

Hence, the length of each piece of rope is $1\frac{1}{2}$ m.

05

Answer :

Weight of 18 boxes of nails = $49\frac{1}{2}$ kg = $\frac{99}{2}$ kg

$$\begin{aligned} \therefore \text{Weight of 1 box} &= \left(\frac{99}{2} \div 18 \right) \text{ kg} \\ &= \left(\frac{99}{2} \times \frac{1}{18} \right) \text{ kg} \quad [\because \text{Reciprocal of } 18 = \frac{1}{18}] \\ &= \left(\frac{99 \times 1}{2 \times 18} \right) \text{ kg} = \left(\frac{11 \times 1}{2 \times 2} \right) \text{ kg} = \frac{11}{4} \text{ kg} = 2\frac{3}{4} \text{ kg} \end{aligned}$$

Hence, the weight of each box is $2\frac{3}{4}$ kg.

06

Answer :

Cost of 1 orange = Rs $3\frac{3}{4}$ = Rs $\frac{15}{4}$

Total cost of the oranges sold by the man = Rs 210

$$\begin{aligned} \therefore \text{Required number of oranges} &= \left(210 \div \frac{15}{4} \right) \\ &= \left(210 \times \frac{4}{15} \right) \quad [\because \text{Reciprocal of } \frac{15}{4} = \frac{4}{15}] \\ &= (14 \times 4) = 56 \end{aligned}$$

Hence, the man sold 56 oranges.

Answer :

Cost of 1 kg of mangoes = Rs $18\frac{1}{2}$ = Rs $\frac{37}{2}$

Total cost of the required mangoes = Rs $157\frac{1}{4}$ = Rs $\frac{629}{4}$

$$\begin{aligned} \therefore \text{Weight of the required mangoes} &= \left(\frac{629}{4} \div \frac{37}{2} \right) \text{ kg} \\ &= \left(\frac{629}{4} \times \frac{2}{37} \right) \text{ kg} \quad [\because \text{Reciprocal of } \frac{37}{2} = \frac{2}{37}] \\ &= \left(\frac{17}{2} \right) \text{ kg} = 8\frac{1}{2} \text{ kg} \end{aligned}$$

Hence, the weight of the mangoes available for Rs $157\frac{1}{4}$ is $8\frac{1}{2}$ kg.

07

Answer :

Distance covered by Vikas in $7\frac{3}{4}$ h = $20\frac{2}{3}$ km

$$\begin{aligned}\therefore \text{Distance covered by him in 1 h} &= \left(20\frac{2}{3} \div 7\frac{3}{4}\right) \text{ km} \\ &= \left(\frac{62}{3} \div \frac{31}{4}\right) \text{ km} \\ &= \left(\frac{62}{3} \times \frac{4}{31}\right) \text{ km} \\ &= \left(\frac{2 \times 4}{3}\right) \text{ km} = \left(\frac{8}{3}\right) \text{ km} = 2\frac{2}{3} \text{ km}\end{aligned}$$

Hence, the distance covered by Vikas in 1 h is $2\frac{2}{3}$ km.

08

Answer :

Cost of $8\frac{1}{2}$ kg of sugar = Rs $148\frac{3}{4}$

$$\begin{aligned}\therefore \text{Cost of 1 kg of sugar} &= \text{Rs} \left(148\frac{3}{4} \div 8\frac{1}{2}\right) \\ &= \text{Rs} \left(\frac{595}{4} \div \frac{17}{2}\right) \\ &= \text{Rs} \left(\frac{595}{4} \times \frac{2}{17}\right) = \text{Rs} \left(\frac{35}{2}\right) = \text{Rs} 17\frac{1}{2}\end{aligned}$$

Hence, the cost of 1 kg of sugar is Rs $17\frac{1}{2}$.

09

10

Answer :

Cost of 1 notebook = Rs $7\frac{3}{4}$ = Rs $\frac{31}{4}$

$$\begin{aligned}\therefore \text{Number of notebooks purchased for Rs } 69\frac{3}{4} &= \left(69\frac{3}{4} \div \frac{31}{4}\right) \\ &= \left(\frac{279}{4} \div \frac{31}{4}\right) \\ &= \left(\frac{279}{4} \times \frac{4}{31}\right) \quad [\because \text{Reciprocal of } \frac{31}{4} = \frac{4}{31}] \\ &= \left(\frac{279}{31}\right) = 9\end{aligned}$$

Hence, 9 notebooks can be purchased for Rs $69\frac{3}{4}$.

11

Answer :

Cost of 1 ticket = Rs $10\frac{1}{2}$ = Rs $\frac{21}{2}$

Total amount collected by the boy = Rs $283\frac{1}{2}$ = Rs $\frac{567}{2}$

$$\begin{aligned}\therefore \text{Number of tickets sold} &= \left(\frac{567}{2} \div \frac{21}{2}\right) \\ &= \left(\frac{567}{2} \times \frac{2}{21}\right) \quad [\because \text{Reciprocal of } \frac{21}{2} = \frac{2}{21}] \\ &= \frac{567}{21} = 27\end{aligned}$$

Hence, the boy sold 27 tickets of the charity show.

12

Answer :

Amount contributed by 1 student = Rs $61\frac{1}{2}$ = Rs $\frac{123}{2}$

Total amount collected = Rs $676\frac{1}{2}$ = Rs $\frac{1353}{2}$

$$\begin{aligned}\therefore \text{Number of students in the group} &= \left(\frac{1353}{2} \div \frac{123}{2}\right) \\ &= \left(\frac{1353}{2} \times \frac{2}{123}\right) \quad [\because \text{Reciprocal of } \frac{123}{2} = \frac{2}{123}] \\ &= \left(\frac{1353}{123}\right) = 11\end{aligned}$$

Hence, there are 11 students in the group.

13

Answer :

Quantity of milk given to each student = $\frac{2}{5}$ L

Total quantity of milk distributed among all the students = 24 L

$$\begin{aligned}\therefore \text{Number of students} &= \left(24 \div \frac{2}{5}\right) \\ &= \left(24 \times \frac{5}{2}\right) \quad [\because \text{Reciprocal of } \frac{2}{5} = \frac{5}{2}] \\ &= (12 \times 5) = 60\end{aligned}$$

Hence, there are 60 students in the hostel.

14

Answer :

Capacity of the small jug = $\frac{3}{4}$ L

Capacity of the bucket = $20\frac{1}{4}$ L = $\frac{81}{4}$ L

$$\begin{aligned}\therefore \text{Required number of small jugs} &= \left(\frac{81}{4} \div \frac{3}{4}\right) \\ &= \left(\frac{81}{4} \times \frac{4}{3}\right) \quad [\because \text{Reciprocal of } \frac{3}{4} = \frac{4}{3}] \\ &= \left(\frac{81}{3}\right) = 27\end{aligned}$$

Hence, the small jug has to be filled 27 times to empty the water from the bucket.

15

Answer :

Product of the two numbers = $15\frac{5}{6} = \frac{95}{6}$

One of the numbers = $6\frac{1}{3} = \frac{19}{3}$

$$\begin{aligned}\therefore \text{The other number} &= \left(\frac{95}{6} \div \frac{19}{3}\right) \\ &= \left(\frac{95}{6} \times \frac{3}{19}\right) \quad [\because \text{Reciprocal of } \frac{19}{3} = \frac{3}{19}] \\ &= \left(\frac{5}{2}\right) = 2\frac{1}{2}\end{aligned}$$

Hence, the other number is $2\frac{1}{2}$.

16

Answer :

Product of the two numbers = 42

One of the numbers = $9\frac{4}{5} = \frac{49}{5}$

$$\begin{aligned}\therefore \text{The other number} &= \left(42 \div \frac{49}{5}\right) \\ &= \left(42 \times \frac{5}{49}\right) \quad [\because \text{Reciprocal of } \frac{49}{5} = \frac{5}{49}] \\ &= \left(\frac{6 \times 5}{7}\right) = \frac{30}{7} = 4\frac{2}{7}\end{aligned}$$

Hence, the required number is $4\frac{2}{7}$.

17

Answer :

$$\begin{aligned}\text{Required number} &= \left(6\frac{2}{9} \div 4\frac{2}{3}\right) \\ &= \left(\frac{56}{9} \div \frac{14}{3}\right) \\ &= \left(\frac{56}{9} \times \frac{3}{14}\right) \quad [\because \text{Reciprocal of } \frac{14}{3} = \frac{3}{14}] \\ &= \left(\frac{4}{3}\right) = 1\frac{1}{3}\end{aligned}$$

Hence, we have to divide $6\frac{2}{9}$ by $1\frac{1}{3}$ to get $4\frac{2}{3}$.

Fractions

Exercise 2D

Q1

Answer :

(c) $\frac{10}{3}$

$\frac{10}{3}$ is a vulgar fraction, because its denominator is other than 10, 100, 1000, etc.

Q2

Answer :

(c) $\frac{9}{7}$

$\frac{9}{7}$ is an improper fraction, because its numerator is greater than its denominator.

Q3

Answer :

(a) $\frac{105}{112}$

A fraction that is reducible can be reduced by dividing both the numerator and denominator by a common factor.

$$\frac{105 \div 7}{112 \div 7} = \frac{15}{16}$$

Thus, $\frac{105}{112}$ is a reducible fraction.

Q5
Answer :

(c) equivalent fractions

Equivalent fractions are those which are the same but look different.

Thus, $\frac{2}{3}$, $\frac{4}{6} = \frac{2}{3}$, $\frac{6}{9} = \frac{2}{3}$, $\frac{8}{12} = \frac{2}{3}$ are equivalent fractions.

Q5

Answer :

(c) $\frac{9}{16} > \frac{13}{24}$

The two fraction are $\frac{9}{16}$ and $\frac{13}{24}$.

By cross multiplication, we have:

$$9 \times 24 = 216 \text{ and } 13 \times 16 = 208$$

However, $216 > 208$

$$\therefore \frac{9}{16} > \frac{13}{24}$$

Q6

Answer :

(d) none of these

Reciprocal of $1\frac{3}{4} = \text{Reciprocal of } \frac{7}{4} = \frac{4}{7}$

Q7

Answer :

(c) $\frac{5}{6}$

$$\left(\frac{3}{10} + \frac{8}{15}\right) = \left(\frac{9+16}{30}\right) \quad [\because \text{LCM of 10 and 15} = 30]$$
$$= \frac{25}{30} = \frac{5}{6}$$

Q8

Answer :

(d) $\frac{11}{12}$

$$\left(3\frac{1}{4} - 2\frac{1}{3}\right) = \left(\frac{13}{4} - \frac{7}{3}\right)$$
$$= \left(\frac{39-28}{12}\right) \quad [\because \text{LCM of 4 and 3} = 12]$$
$$= \frac{11}{12}$$

Q9

Answer :

(d) 144

$$36 \div \frac{1}{4} = 36 \times 4 \quad [\because \text{Reciprocal of } \frac{1}{4} = 4]$$
$$= 144$$

Q10

Answer :

(b) $\frac{5}{7}$

$$\text{Required number} = 1\frac{6}{7} \div 2\frac{3}{5}$$
$$= \frac{13}{7} \div \frac{13}{5}$$
$$= \frac{13}{7} \times \frac{5}{13} \quad [\because \text{Reciprocal of } \frac{13}{5} = \frac{5}{13}]$$
$$= \frac{5}{7}$$

Q11

Answer :

(d) $2\frac{1}{4}$

$$\text{Required number} = 1\frac{1}{2} \div \frac{2}{3}$$

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

$$= \frac{3}{2} \times \frac{3}{2} \quad [\because \text{Reciprocal of } \frac{2}{3} = \frac{3}{2}]$$

$$= \frac{9}{4} = 2\frac{1}{4}$$

Q12

Answer :

(c) $2\frac{2}{5}$

$$1\frac{3}{5} \div \frac{2}{3} = \frac{8}{5} \div \frac{2}{3}$$

$$= \frac{8}{5} \times \frac{3}{2} \quad [\because \text{Reciprocal of } \frac{2}{3} = \frac{3}{2}]$$

$$= \left(\frac{4 \times 3}{5}\right) = \frac{12}{5} = 2\frac{2}{5}$$

Q13

Answer :

(d) $1\frac{5}{6}$

$$2\frac{1}{5} \div 1\frac{1}{5} = \frac{11}{5} \div \frac{6}{5}$$

$$= \frac{11}{5} \times \frac{5}{6} \quad [\because \text{Reciprocal of } \frac{6}{5} = \frac{5}{6}]$$

$$= \frac{11}{6} = 1\frac{5}{6}$$

Q14

Answer :

(d) $\frac{3}{5}$

$$\text{Reciprocal of } 1\frac{2}{3} = \text{Reciprocal of } \frac{5}{3} = \frac{3}{5}$$

Q15

Answer :

(b) $\frac{3}{5} < \frac{2}{3} < \frac{14}{15}$

The given fractions are $\frac{3}{5}$, $\frac{2}{3}$ and $\frac{14}{15}$.

LCM of 5, 3 and 15 = 15

Now, we have:

$$\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}, \frac{3}{5} \times \frac{3}{3} = \frac{9}{15} \text{ and } \frac{14}{15} \times \frac{1}{1} = \frac{14}{15}$$

Clearly, $\frac{9}{15} < \frac{10}{15} < \frac{14}{15}$

$$\therefore \frac{3}{5} < \frac{2}{3} < \frac{14}{15}$$

Q16

Answer :

(c) 44 km

Distance covered by the car on $2\frac{3}{4}$ L of petrol = $\left(16 \times 2\frac{3}{4}\right)$ km

$$= \left(16 \times \frac{11}{4}\right) \text{ km}$$

$$= (4 \times 11) \text{ km} = 44 \text{ km}$$

Q17

Answer :

(a) $10\frac{1}{2}$ hours

Time taken by Lalit to read the entire book = $\left(6 \times 1\frac{3}{4}\right)$ h

$$= \left(6 \times \frac{7}{4}\right) \text{ h}$$

$$= \left(\frac{21}{2}\right) \text{ h} = 10\frac{1}{2} \text{ h}$$