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

02

Answer :

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

$= \frac{8}{9}$

(ii) $\frac{7}{10} \div \frac{3}{5} = \frac{7}{10} \times \frac{5}{3}$ [∵ Reciprocal of $\frac{3}{5} = \frac{5}{3}$]

$= \frac{7}{6} = 1\frac{1}{6}$

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

$= \frac{1}{18}$

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

= 27

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

= 4 × 7 = 28

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

$= \frac{18}{5} \times \frac{5}{4}$ [∵ Reciprocal of $\frac{4}{5} = \frac{5}{4}$]

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

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

$= \frac{24}{7} \times \frac{21}{8}$ [∵ Reciprocal of $\frac{8}{21} = \frac{21}{8}$]

= 3 3 = 9

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

$= \frac{39}{7} \times \frac{10}{13}$ [∵ Reciprocal of $\frac{13}{10} = \frac{10}{13}$]

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

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

$= \frac{108}{7} \times \frac{49}{72}$ [∵ Reciprocal of $\frac{72}{49} = \frac{49}{72}$]

$= \frac{9\times7}{1\times6} = \frac{3\times7}{1\times2} = \frac{21}{2} = 10\frac{1}{2}$

03

Answer :

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

$= \frac{11}{24} \times \frac{8}{7}$ [∵ Reciprocal of $\frac{7}{8} = \frac{8}{7}$]

$= \frac{11}{21}$

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

$= \frac{55}{8} \times \frac{16}{11}$ [∵ Reciprocal of $\frac{11}{16} = \frac{16}{11}$]

= 5 × 2 = 10

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

$= \frac{50}{9} \times \frac{3}{10}$ [∵ Reciprocal of $\frac{10}{3} = \frac{3}{10}$]

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

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

$= 32 \times \frac{5}{8}$ [∵ Reciprocal of $\frac{8}{5} = \frac{5}{8}$]

$= 4 \times 5 = 20$

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

$= 45 \times \frac{5}{9}$ [∵ Reciprocal of $\frac{9}{5} = \frac{5}{9}$]

$= 5 \times 5 = 25$

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

$= 63 \times \frac{4}{9}$ [∵ 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

∴ Length of each piece = $\left(\frac{27}{2} \div 9\right)$ m

$= \left(\frac{27}{2} \times \frac{1}{9}\right)$ m [∵ Reciprocal of $9 = \frac{1}{9}$]

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

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

∴ Weight of 1 box = $\left(\frac{99}{2} \div 18\right)$ kg

$= \left(\frac{99}{2} \times \frac{1}{18}\right)$ kg [∵ Reciprocal of $18 = \frac{1}{18}$]

$= \left(\frac{99 \times 1}{2 \times 18}\right)$ kg $= \left(\frac{11 \times 1}{2 \times 2}\right)$ kg $= \frac{11}{4}$ kg $= 2\frac{3}{4}$ kg

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

∴ Required number of oranges = $\left(210 \div \frac{15}{4}\right)$

$= \left(210 \times \frac{4}{15}\right)$ [∵ Reciprocal of $\frac{15}{4} = \frac{4}{15}$]

$= (14 \times 4) = 56$

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 $\frac{629}{4}$

∴ Weight of the required mangoes = $\left(\frac{629}{4} \div \frac{37}{2}\right)$ kg

$= \left(\frac{629}{4} \times \frac{2}{37}\right)$ kg [∵ Reciprocal of $\frac{37}{2} = \frac{2}{37}$]

$= \left(\frac{17}{2}\right)$ kg $= 8\frac{1}{2}$ kg

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

∴ Distance covered by him in 1 h = $\left(20\frac{2}{3} \div 7\frac{3}{4}\right)$ km

$= \left(\frac{62}{3} \div \frac{31}{4}\right)$ km

$= \left(\frac{62}{3} \times \frac{4}{31}\right)$ km

$= \left(\frac{2\times4}{3}\right)$ km $= \left(\frac{8}{3}\right)$ km $= 2\frac{2}{3}$ km

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 $148\frac{3}{4}$

∴ Cost of 1 kg of sugar = Rs $\left(148\frac{3}{4} \div 8\frac{1}{2}\right)$

= Rs $\left(\frac{595}{4} \div \frac{17}{2}\right)$

= Rs $\left(\frac{595}{4} \times \frac{2}{17}\right)$ = Rs $\left(\frac{35}{2}\right)$ = Rs $17\frac{1}{2}$

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 $\frac{31}{4}$

∴ Number of notebooks purchased for Rs $69\frac{3}{4}$ = $\left(69\frac{3}{4} \div \frac{31}{4}\right)$

$= \left(\frac{279}{4} \div \frac{31}{4}\right)$

$= \left(\frac{279}{4} \times \frac{4}{31}\right)$ [∵ Reciprocal of $\frac{31}{4} = \frac{4}{13}$]

$= \left(\frac{279}{31}\right) = 9$

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 $\frac{567}{2}$

∴ Number of tickets sold = $\left(\frac{567}{2} \div \frac{21}{2}\right)$

$= \left(\frac{567}{2} \times \frac{2}{21}\right)$ [∵ Reciprocal of $\frac{21}{2} = \frac{2}{21}$]

$= \frac{567}{21} = 27$

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 $\frac{1353}{2}$

∴ Number of students in the group = $\left(\frac{1353}{2} \div \frac{123}{2}\right)$

$= \left(\frac{1353}{2} \times \frac{2}{123}\right)$ [∵ Reciprocal of $\frac{123}{2} = \frac{2}{123}$]

$= \left(\frac{1353}{123}\right) = 11$

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

$\therefore$ Number of students $= \left(24 \div \frac{2}{5}\right)$

$= \left(24 \times \frac{5}{2}\right)$ [$\because$ Reciprocal of $\frac{2}{5} = \frac{5}{2}$]

$= (12 \times 5) = 60$

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

$\therefore$ Required number of small jugs $= \left(\frac{81}{4} \div \frac{3}{4}\right)$

$= \left(\frac{81}{4} \times \frac{4}{3}\right)$ [$\because$ Reciprocal of $\frac{3}{4} = \frac{4}{3}$]

$= \left(\frac{81}{3}\right) = 27$

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 $= 6\frac{1}{3} = \frac{19}{3}$

$\therefore$ The other number $= \left(\frac{95}{6} \div \frac{19}{3}\right)$

$= \left(\frac{95}{6} \times \frac{3}{19}\right)$ [$\because$ Reciprocal of $\frac{19}{3} = \frac{3}{19}$]

$= \left(\frac{5}{2}\right) = 2\frac{1}{2}$

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

16

Answer :

Product of the two numbers = 42

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

$\therefore$ The other number $= \left(42 \div \frac{49}{5}\right)$

$= \left(42 \times \frac{5}{49}\right)$ [$\because$ Reciprocal of $\frac{49}{5} = \frac{5}{49}$]

$= \left(\frac{6 \times 5}{7}\right) = \frac{30}{7} = 4\frac{2}{7}$

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

17

Answer :

Required number $= \left(6\frac{2}{9} \div 4\frac{2}{3}\right)$

$= \left(\frac{56}{9} \div \frac{14}{3}\right)$

$= \left(\frac{56}{9} \times \frac{3}{14}\right)$ [$\because$ Reciprocal of $\frac{14}{3} = \frac{3}{14}$]

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

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