

EXERCISE 2C

Q:1 Write down the reciprocal of :

$$i) \frac{5}{8} = \frac{8}{5}$$

$$ii) 7 = \frac{1}{7}$$

$$iii) \frac{1}{12} = 12$$

$$iv) 12 \frac{3}{5} = \frac{63}{5} = \frac{5}{63}$$

Q:2 Simplify :

$$i) \frac{4}{7} \div \frac{9}{14} = \frac{4 \times 14}{7 \times 9} = \frac{8}{9}$$

vi) $19 \frac{3}{7} \div 1 \frac{23}{49}$ reciprocal of $\frac{72}{49} = \frac{49}{72}$

$$\frac{\overset{11}{\cancel{88}} \times \overset{7}{\cancel{49}}}{\underset{1}{\cancel{7}} \times \underset{9}{\cancel{72}}} = \frac{77}{9} = 8 \frac{5}{9}$$

3. Divide

1. $\frac{11}{24}$ by $\frac{7}{8}$ $\therefore$ reciprocal of $\frac{7}{8} = \frac{8}{7}$

$$= \frac{11 \times \overset{1}{\cancel{8}}}{\underset{3}{\cancel{24}} \times 7} = \frac{11}{21}$$

2. $6 \frac{7}{8}$ by $\frac{11}{16}$ $\therefore$ reciprocal of $\frac{11}{16} = \frac{16}{11}$

$$= \frac{\overset{5}{\cancel{55}} \times \overset{2}{\cancel{16}}}{\underset{1}{\cancel{8}} \times \underset{1}{\cancel{11}}} = 10$$

$$3 \text{ } 5 \frac{5}{9} \text{ by } 3 \frac{1}{3} \dots$$

$\therefore$ reciprocal of $\frac{10}{3} = \frac{3}{10}$

$$= \frac{\overset{5}{50} \times \overset{1}{3}}{\underset{3}{9} \times \underset{1}{10}} = \frac{5}{3} = 1 \frac{2}{3}$$

$$4. 32 \text{ by } 1 \frac{3}{5} \dots$$

$\therefore$ reciprocal of $\frac{8}{5} = \frac{5}{8}$

$$\frac{\overset{4}{32} \times 5}{1 \times \underset{1}{8}} = \underline{20}$$

$$5. 45 \text{ by } 1 \frac{4}{6} \dots$$

$\therefore$ reciprocal of $\frac{9}{5} = \frac{5}{9}$

$$= \frac{\overset{5}{45} \times 5}{1 \times \underset{3}{9}} = 25$$

$$6. 63 \text{ by } 2\frac{1}{4} \dots \therefore \text{reciprocal of } \frac{9}{4} = \frac{4}{9}$$

$$= \frac{63 \times 4}{1 \times 9} = 28$$

Q4. A rope of length $13\frac{1}{2}$ m has been divided into 9 pices of the same length what is the length of each peice?

$$\rightarrow 13\frac{1}{2} \text{ by } 9 \dots \therefore \text{reciprocal of } \frac{9}{1} = \frac{1}{9}$$

$$= \frac{27 \times 1}{2 \times 9} = \frac{3}{2} = 1\frac{1}{2} \text{ m}$$

$\therefore$ The rope should be divided into 9 pices of $1\frac{1}{2}$ meter

Q5. 18 boxes of nail weigh equally and their total weight is $49\frac{1}{2}$ kg. how much does each box weigh?

$$\Rightarrow 49\frac{1}{2} \text{ by } 18 \quad \dots \quad \text{reciprocal of } \frac{18}{1} = \frac{1}{18}$$

$$= \frac{99 \times 1}{2 \times 18} = \frac{33}{12} = 2\frac{9}{12} = 2\frac{3}{4}$$

Weight of each box is $= 2\frac{3}{4}$ k.g.

Q: 6 By selling oranges at the rate of ₹ $6\frac{3}{4}$ per orange a man gets ₹ 378. How many oranges does he sale

$$\Rightarrow \text{Total money man earn} = 378$$

$$\text{Rate of 1 orange} = 6\frac{3}{4} = \frac{27}{4} \dots$$

$$\text{reciprocal of } \frac{27}{4} \text{ is } \frac{4}{27}$$

$$= \frac{378 \times 4}{1 \times 27} = \frac{56}{1}$$

The man sold 56 Oranges.

$$\begin{array}{r} 14 \\ 27 \overline{) 378} \\ \underline{54} \\ 81 \\ \underline{108} \\ 108 \\ \underline{108} \\ 000 \end{array}$$

Q:7 Mangoes are sold at ₹ $43\frac{1}{2}$ per kg. What is the weight of mangoes available for ₹ $326\frac{1}{4}$?

$$\Rightarrow \text{Cost of 1 kg. mangoes} = ₹ 43\frac{1}{2} = \frac{87}{2}$$

$$\text{Cost of total mangoes sold} = ₹ 326\frac{1}{4}$$

$$\therefore \text{reciprocal of } \frac{87}{2} = \frac{2}{87}$$

$$= \frac{17305 \times 2}{4 \times 87} = \frac{15305}{2 \times 173} = 7\frac{1}{2} \text{ kg.}$$

Q:8 Vikas can cover a distance of $20\frac{2}{3}$ km in $7\frac{3}{4}$ hours on foot. How many km Per hour does he walk?

⇒ Total distance covered by vikas $20\frac{2}{3}$ km
 Time taken by vikas $7\frac{3}{4}$ hours.

$$\therefore 20\frac{2}{3} \div 7\frac{3}{4} = \frac{62}{3} \div \frac{31}{4}$$

$$\frac{62 \times 4}{3 \times 31} = \frac{8}{3} = 2\frac{2}{3} \text{ km}$$

Vikas walk $2\frac{2}{3}$ km per hour.

9. Preeti brought $8\frac{1}{2}$ kg of sugar for ₹ $242\frac{1}{4}$ find the cost of sugar per kg.

$$\Rightarrow \text{Sugar cost} = ₹ 242\frac{1}{4} = \frac{969}{4}$$

$$\text{Sugar bought by Preeti} = 8\frac{1}{2} = \frac{17}{2}$$

$$\frac{969}{4} = \frac{969}{4} \div \frac{17}{2} \quad \left[\frac{2}{17} \right]$$

Reciprocal

$$= \frac{969 \times 2}{4 \times 17} = \frac{57}{2} = 28\frac{1}{2}$$

10. If the cost of a notebook is ₹ $27\frac{3}{4}$, how many notebooks can be purchased for ₹ $249\frac{3}{4}$?

⇒ Cost of a notebook is ₹ $27\frac{3}{4} = \frac{111}{4}$

$$\text{Total money} = 249\frac{3}{4} = \frac{999}{4}$$

$$\therefore \left[\frac{4}{111} \right] \text{ Reciprocal}$$

$$\frac{999}{4} \times \frac{4}{111} = 9 \text{ notebooks}$$

∴ We can buy 9 notebooks by ₹ $249\frac{3}{4}$.

11. At a Charity show the price of each ticket was ₹ $32\frac{1}{2}$. The total amount collected by a boy was ₹ $877\frac{1}{2}$. How many tickets were sold?

$$\Rightarrow \text{Total money collected} = ₹ 877\frac{1}{2} = \frac{1775}{2}$$

$$\text{Price of each ticket} = ₹ 32\frac{1}{2} = \frac{65}{2}$$

$$\therefore \text{reciprocal} \left[\frac{2}{65} \right]$$

$$= \frac{1775 \times 2}{2 \times 65} = \frac{1775}{65} = \frac{355}{13} = 24\frac{14}{13}$$

12. A group of students attend a picnic.

Each student contributed ₹ $269\frac{3}{4}$. The

Total contribution was ₹ $2876\frac{1}{2}$. How many students was in the group?

$$\Rightarrow \text{Total money collected} = ₹ 2876\frac{1}{2}$$

$$\text{Money contributed} = ₹ 269\frac{3}{4} = \frac{999}{4}$$

$$\therefore \text{reciprocal } \frac{4}{529}$$

$$= \frac{11 \cancel{5} 3 \times \cancel{2}^2}{\cancel{1} 2 \times \cancel{5} 2 \cancel{9}_1} = 22$$

$\therefore$ These are 22 students in the group

13. 24 Liters of milk distributed equally among all the students of a hostel. If each student got $\frac{2}{5}$ liter of milk how many students are there in a hostel.

$$\Rightarrow \text{Total milk} = 24 \text{ L}$$

$$\text{Each student} = \frac{2}{5} \text{ L}$$

$$\therefore \text{reciprocal of } \frac{2}{5} \text{ is } \frac{5}{2}$$

$$= \frac{12 \cancel{2} \times 5}{1 \times \cancel{2}} = 60$$

There are 60 students

15. A bucket contains $20\frac{1}{4}$ liters of water. A small jug has a capacity many times the jug has to be filled with water from the bucket to get it emptied.

$$\Rightarrow \text{Total water in a bucket} = 20\frac{1}{4} \text{ L}$$

$$\text{Capacity of Jug} = \frac{3}{4} \text{ L}$$

$$\therefore \text{Reciprocal of } \frac{3}{4} \text{ is } \frac{4}{3}$$

$$= \frac{24}{\cancel{8} \times \cancel{4}} = 24$$

$\therefore$ 24 jugs of water is needed to make a bucket empty.

There are 60 students

15. A bucket contains $20\frac{1}{4}$ liters of water. A small jug has a capacity many times the jug has to be filled with water from the bucket to get it emptied.

$\Rightarrow$ Total water in a bucket = $20\frac{1}{4}$ L

Capacity of Jug = $\frac{3}{4}$ L

$\therefore$ Reciprocal of $\frac{3}{4}$ is $\frac{4}{3}$

$$= \frac{24}{\cancel{8} \times \cancel{4}} = 24$$

$\therefore$ 24 jugs of water is needed to make a bucket empty.

15. The product of two numbers is $15\frac{5}{6}$.
If one of the numbers is $6\frac{1}{3}$,
find the other.

$$\Rightarrow \text{The product of 2 no.} = 15\frac{5}{6}$$

$$\text{One no.} = 6\frac{1}{3}$$

$$\therefore \text{reciprocal of } \frac{3}{19} = \frac{19}{3}$$

$$= \frac{99 \cancel{95}^5 \times \cancel{3}^1}{\cancel{2}6 \times \cancel{19}_1} = \frac{5}{2} = 2\frac{1}{2}$$

$$\therefore \text{The second no. is } 2\frac{1}{2}$$

16. by what no. should $9\frac{4}{5}$ be multiplied
to get 42.

$$\Rightarrow \therefore \text{reciprocal of } \frac{49}{5} = \frac{5}{49}$$

$$= \frac{\overset{6}{45} \times 5}{1 \times \cancel{49}_7} = \frac{30}{7} = 4 \frac{2}{7}$$

$\therefore 4 \frac{2}{7}$ is the second no.

17. by what number should $6 \frac{2}{9}$ be divided to obtain $4 \frac{2}{3}$.

$$\Rightarrow \therefore \text{reciprocal of } \frac{14}{3} = \frac{3}{14}$$

$$= \frac{\overset{4}{56} \times \cancel{31}_1}{\underset{3}{9} \times \cancel{14}_1} = \frac{4}{3} = 1 \frac{1}{3}$$

$\therefore 1 \frac{1}{3}$ is the no.