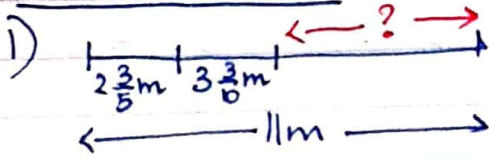


VIII Word Problems (RATIONAL NUMBERS)

- 1) From a rope 11m long, two pieces of lengths $2\frac{3}{5}$ m and $3\frac{3}{10}$ m are cut off. What is the length of the remaining rope?
- 2) A drum full of rice weighs $40\frac{1}{6}$ kg. If the empty drum weighs $13\frac{3}{6}$ kg, find the weight of rice in the drum.
- 3) A basket contains three types of fruits weighing $19\frac{1}{3}$ kg in all. If $8\frac{1}{9}$ kg of these be apples, $3\frac{1}{6}$ kg be oranges and the rest pears, what is the weight of the pears in the basket?
- 4) On one day a rickshaw puller earned ₹ 80. Out of his earning he spent ₹ $13\frac{3}{5}$ on tea and snacks, ₹ $25\frac{1}{2}$ on food and ₹ $4\frac{2}{5}$ on repairs of the rickshaw. How much did he save on that day?
- 5) Find the cost of $3\frac{2}{5}$ m of cloth at ₹ $36\frac{3}{4}$ per metre.
- 6) A car is moving at an average speed of $40\frac{2}{5}$ km/hr. How much distance will it cover in $7\frac{1}{2}$ hours?
- 7) Find the area of a rectangular park which is $36\frac{3}{5}$ m long and $16\frac{2}{3}$ m broad.
- 8) Find the area of a square plot of land whose each side measures $8\frac{1}{2}$ metres.
- 9) One litre of petrol costs ₹ $46\frac{3}{4}$. What is the cost of 35l of petrol?
- 10) An aeroplane covers 1020 km in an hour. How much distance will it cover in $4\frac{1}{6}$ hours?
- 11) The cost of $3\frac{1}{2}$ m of cloth is ₹ $57\frac{3}{4}$. What is the cost of one metre of cloth?
- 12) A cord of length $71\frac{1}{2}$ m has been cut into 26 pieces of equal length. What is the length of each piece?
- 13) The area of a room is $65\frac{1}{4}$ m². If its breadth is $5\frac{7}{16}$ m. What is its length?
- 14) The product of two fractions is $9\frac{3}{5}$. If one of the fractions is $9\frac{3}{7}$, find the other.
- 15) In a school, $\frac{5}{8}$ of the students are boys. If there are 240 girls, find the no. of boys in the school.

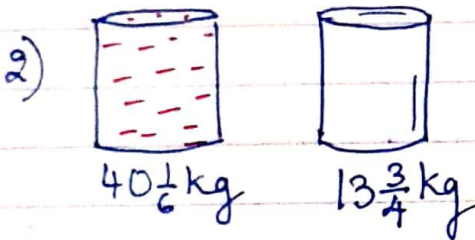
- 16) After reading $\frac{1}{9}$ of a book, 40 pages are left. How many pages are there in the book?
- 17) Rita had ₹ 300. She spent $\frac{1}{3}$ of her money on notebooks and $\frac{1}{4}$ of the remainder on stationery items. How much money is left with her?
- 18) Amit earns ₹ 16000 per month. He spends $\frac{1}{4}$ of his income on food; $\frac{3}{10}$ of the remainder on house rent and $\frac{5}{21}$ of the remainder on the education of children. How much money is still left with him?
- 19) If $\frac{3}{5}$ of a number exceeds its $\frac{2}{7}$ by 44, find the number.
- 20) At a cricket test match $\frac{2}{7}$ of the spectators were in a covered place while 15000 were in open. Find the total number of spectators.
-

VIII Word Problems (Rational Numbers)



$$\begin{aligned} \text{Total length of two pieces} &= 2\frac{3}{5} + 3\frac{3}{10} = \frac{13 \times 2}{5 \times 2} + \frac{33}{10} \\ &= \frac{26+33}{10} = \frac{59}{10} \text{ m} \end{aligned}$$

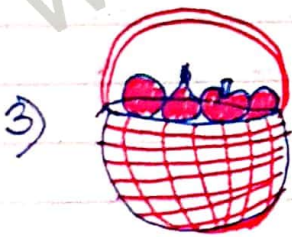
$$\begin{aligned} \therefore \text{length of the remaining rope} &= \frac{11 \times 10}{1 \times 10} - \frac{59}{10} \\ &= \frac{110-59}{10} = \frac{51}{10} = \underline{\underline{5\frac{1}{10} \text{ m}}} \end{aligned}$$



Weight of rice in the drum
= Weight of drum with rice
- Weight of empty drum

$$\begin{aligned} &= 40\frac{1}{6} - 13\frac{3}{4} \\ &= \frac{241 \times 2}{6 \times 2} - \frac{55 \times 3}{4 \times 3} = \frac{482-165}{12} \end{aligned}$$

$$= \frac{317}{12} = \underline{\underline{26\frac{5}{12} \text{ kg}}}$$



Weight of apples = $8\frac{1}{9} = \frac{73}{9} \text{ kg}$

Weight of oranges = $3\frac{1}{6} = \frac{19}{6} \text{ kg}$

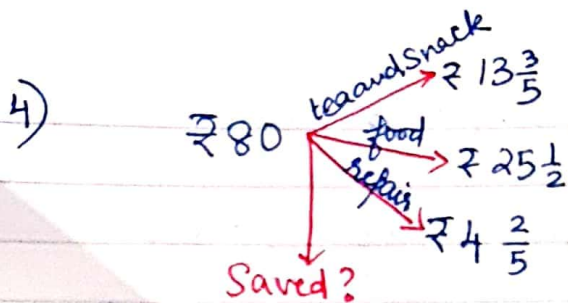
\therefore Weight of pears = Weight of basket containing fruits

- (weight of apple + weight of oranges)

$$\text{Weight of apple + weight of oranges} = \frac{73 \times 2}{9 \times 2} + \frac{19 \times 3}{6 \times 3} = \frac{146+57}{18}$$

$$= \frac{203}{18} \text{ kg}$$

$$\therefore \text{Weight of pears} = \frac{58 \times 6}{3 \times 6} - \frac{203}{18} = \frac{348-203}{18} = \frac{145}{18} = \underline{\underline{8\frac{1}{18} \text{ kg}}}$$



$$\begin{aligned} \text{Amount he spent} &= 13\frac{3}{5} + 25\frac{1}{2} + 4\frac{2}{5} \\ &= \frac{68 \times 2}{5 \times 2} + \frac{51 \times 5}{2 \times 5} + \frac{22 \times 2}{5 \times 2} = \frac{136 + 255 + 44}{10} \\ &= \frac{435}{10} = \frac{87}{2} = \text{₹}87 \end{aligned}$$

$$\begin{aligned} \therefore \text{Amount he saved} &= \text{Amount earned} - \text{Amount spent} \\ &= \frac{80 \times 2}{1 \times 2} - \frac{87}{2} \\ &= \frac{160 - 87}{2} = \frac{73}{2} = \text{₹}36\frac{1}{2} \end{aligned}$$

5) Cost of 1 metre cloth = ₹ $36\frac{3}{4} = \frac{147}{4}$

$$\begin{aligned} \therefore \text{Cost of } 3\frac{2}{5} \text{ m cloth} &= \frac{147}{4} \times \frac{17}{5} = \frac{2499}{20} = \frac{1249.5}{10} \\ &= \text{₹}124.95 \end{aligned}$$

6) Distance covered by car in 1 hour = $40\frac{2}{5} \text{ km} = \frac{202}{5} \text{ km}$

$$\therefore \text{Distance covered by car in } 7\frac{1}{2} \text{ hours} = \frac{202}{5} \times \frac{15}{2} = \frac{101 \times 3}{1} = 101 \times 3 = \underline{\underline{303 \text{ km}}}$$



7) length of the rectangular park = $36\frac{3}{5} = \frac{183}{5} \text{ m}$

breadth of the rectangular park = $16\frac{2}{3} = \frac{50}{3} \text{ m}$

$$\therefore \text{Area} = l \times b = \frac{183}{5} \times \frac{50}{3} = 61 \times 10 = \underline{\underline{610 \text{ m}^2}}$$



8) length of 1 side of the square plot = $8\frac{1}{2} \text{ m}$

$$\begin{aligned} \therefore \text{Area} &= \text{side} \times \text{side} = 8\frac{1}{2} \times 8\frac{1}{2} = \frac{17}{2} \times \frac{17}{2} = \frac{289}{4} \\ &= \underline{\underline{72\frac{1}{4} \text{ m}^2}} \end{aligned}$$

9) Cost of 1 litre of petrol = ₹ $46\frac{3}{4} = ₹ \frac{187}{4}$

$$\begin{aligned} \therefore \text{Cost of 35 litres of petrol} &= \frac{187 \times 35}{4} \\ &= \frac{6545}{4} \\ &= \underline{\underline{₹ 1636\frac{1}{4}}} \end{aligned}$$

10) Distance covered by aeroplane in 1 hour = 1020 km

$$\begin{aligned} \therefore \text{Distance covered in } 4\frac{1}{6} \text{ hours} &= \overset{340}{1020} \times \frac{25}{62} \\ &= \frac{8500}{2} = \underline{\underline{4250 \text{ km}}} \end{aligned}$$

11) Cost of $3\frac{1}{2} \text{ m}$ cloth = ₹ $57\frac{3}{4}$

$$\begin{aligned} \therefore \text{Cost of 1 m cloth} &= 57\frac{3}{4} \div 3\frac{1}{2} \\ &= \frac{231}{4} \div \frac{7}{2} = \frac{231}{4} \times \frac{2}{7} \\ &= \underline{\underline{₹ 16\frac{1}{2}}} \end{aligned}$$

12) Total length of cord = $71\frac{1}{2} \text{ m} = \frac{143}{2} \text{ m}$

No. of pieces = 26

$$\begin{aligned} \therefore \text{length of 1 piece} &= \frac{143}{2} \div 26 \\ &= \frac{143}{2} \times \frac{1}{26} = \frac{11}{4} = \underline{\underline{2\frac{3}{4} \text{ m}}} \end{aligned}$$

$$13) \text{ Area of rectangular room} = 65\frac{1}{4} = \frac{261}{4} \text{ m}^2$$

$$\text{breadth} = 5\frac{7}{16} = \frac{87}{16} \text{ m}$$

$$\begin{aligned} \text{length} &= \frac{\text{area}}{\text{breadth}} = \frac{261}{4} \div \frac{87}{16} = \frac{261}{4} \times \frac{16}{87} \\ &= 3 \times 4 = \underline{\underline{12 \text{ m}}} \end{aligned}$$

14) Let the other fraction be x

$$9\frac{3}{7} \times x = 9\frac{3}{5}$$

$$\frac{66}{7} \times x = \frac{48}{5}$$

$$\therefore x = \frac{48 \times 7}{5 \times 66} = \frac{56}{55} = 1\frac{1}{55}$$

Hence the other fraction is $\underline{\underline{1\frac{1}{55}}}$

15) Let the total no. of students be x

$$\frac{5}{8}x + 240 = x$$

$$240 = x - \frac{5}{8}x$$

$$x - \frac{5}{8}x = 240$$

$$\frac{8x - 5x}{8} = 240$$

$$3x = 240 \times 8$$

$$x = \frac{240 \times 8}{3} = 640$$

$$\therefore \text{No. of boys} = 640 - 240 = \underline{\underline{400}}$$

16) Let the no. of pages in the book be x

$$\frac{7}{9}x + 40 = x$$

$$40 = x - \frac{7}{9}x$$

$$x - \frac{7}{9}x = 40$$

$$\frac{9x - 7x}{9} = 40$$

$$\frac{2x}{9} = 40$$

$$2x = 40 \times 9$$

$$x = \frac{40 \times 9}{2} = 9 \times 20 = 180$$

\therefore No. of pages in the book = 180

17) Amount Rita had = ₹300

$$\text{Amount spent for notebook} = \frac{1}{3} \times 300 = ₹100$$

$$\text{Remaining amount} = 300 - 100 = 200$$

$$\text{Amount spent on stationery items} = \frac{1}{4} \times 200 = ₹50$$

$$\therefore \text{Amount left with her} = 200 - 50 = ₹150$$

18) Amount Amit earned = ₹16000

$$16000 \quad \text{Amount spent on food} = \frac{1}{4} \times 16000 = ₹4000$$

$$\downarrow 4000$$

$$\text{Remaining amount} = 16000 - 4000 = ₹12000$$

$$12000$$

$$\text{Amount spent on house rent} = \frac{3}{10} \times 12000 = ₹3600$$

$$\downarrow 3600$$

$$\text{Remaining amount} = 12000 - 3600 = ₹8400$$

$$8400$$

$$\text{Amount spent on education of children} = \frac{5}{21} \times 8400 = ₹2000$$

$$\downarrow 2000$$

$$\text{6400}$$

$$\therefore \text{Amount still left with him} = 8400 - 2000 = ₹6400$$

19) Let the number be x

$$\text{Then, } \frac{3}{5} \times x - \frac{2}{7} \times x = 44$$

$$\frac{3x \times 7}{5 \times 7} - \frac{2x \times 5}{7 \times 5} = 44$$

$$\frac{21x - 10x}{35} = 44$$

$$11x = 44 \times 35$$

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

\therefore The number is 140

20) Let the total no. of spectators be x

$$\text{Then, } \frac{2}{7} \times x + 15000 = x$$

$$15000 = x - \frac{2}{7}x$$

$$x - \frac{2}{7}x = 15000$$

$$\frac{7x - 2x}{7} = 15000$$

$$\frac{5x}{7} = 15000$$

$$x = \frac{15000 \times 7}{5} = 21000$$

\therefore Total no. of spectators = 21000

