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Chapter-8: Comparing Quantities

Exercise 8.1 (Page 157)

Q1. Find the ratio of:

(a) Rs 5 to 50 paise

(b) 15 kg to 210 g

(c) 9 m to 27 cm

(d) 30 days to 36 hours

Difficulty Level- Easy

What is given /known?
Quantities in different units

What is the unknown?
Our task is to find the ratio of given quantities.

Reasoning:
These questions are based on the basic concept of comparing two quantities i.e. to find ratio. For finding ratio, first we should observe that both the quantities should be in same unit for e.g. we cannot compare metres with kilometres or grams with kilograms. So, we will have to convert both quantities into same units.

Solution:
(a) Rs 5 to 50 paise

Since, 1 rupee = 100 paise

$$\text{So, 5 rupees} = \frac{100}{1} \times 5$$
$$= 500 \text{ paise}$$
$$\text{Therefore the ratio} = \frac{500}{50}$$
$$= \frac{10}{1} \text{ or } 10:1$$

(b) 15 kg to 210 g

Since, 1 kg = 1000 grams

$$\text{So, } 15\,\text{kg} = \frac{1000}{1} \times 15$$
$$= 15000 \text{ grams}$$
$$\text{There for the ratio} = \frac{15000}{210}$$
$$= \frac{500}{7}$$
$$= 500 : 7$$

(c) 9 m to 27 cm

1 m = 100 cm

$$\text{So, } 9\,\text{m} = \frac{100}{1} \times 9$$
$$= 900\,\text{m}$$
$$\text{Thus, ratio} = \frac{900}{27}$$
$$= \frac{100}{3} \text{ or } 100:3$$

(d) 30 days to 36 hours

Since, 1 day = 24 hrs

$$\text{So, } 30\,\text{days} = \frac{24}{1} \times 30$$
$$= 720\,\text{hrs}$$
$$\text{So, ratio} = \frac{720}{36}$$
$$= \frac{20}{1} \text{ or } 20:1$$

Q2. In a computer lab, there are 3 computers for every 6 students. How many computers will be needed for 24 students?

Difficulty Level- Easy

What is given /known?

Number of computers for 6 students

What is the unknown?

Number of computers for 24 students

Reasoning:

This question can be solved using unitary method. Since number of computers required for six students are given, we can find how many computers are required for one student and from the answer, number of computers required for 24 students can be calculated.

Solution:

For 6 students, 3 computers needed

$$\text{So, for one student, computers needed} = \frac{3}{6}$$
$$= \frac{1}{2}$$

$$\text{And, for 24 students number of computers required} = 24 \times \frac{1}{2}$$
$$= 12 \text{ computers}$$

Q3. Population of Rajasthan = 570 lakhs and population of UP = 1660 lakhs. Area of Rajasthan = 3 lakh km^2 and area of UP = 2 lakh km^2.

(i). How many people are there per km2 in both these States?

(ii). Which state is less populated?

Difficulty Level- Easy

What is given /known?
Area and population of Rajasthan and UP.

What is the unknown?
Number of people per km2 and which state is less populated.

Reasoning:
To solve this question, we will divide total population with total area to know how many people are there per km^2.

Solution:
(i)
Rajasthan. Number of people per km^2

$$= \frac{570,00,000}{3,00,000}$$

$$= 190$$

It means 190 people are there in per km^2 in Rajasthan.

UP. Number of people per km^2

$$= \frac{1660,00,000}{2,00,000}$$

$$= 830$$

It means 830 people are there in per km^2 in UP

(ii) Which State is less populated?
Rajasthan is less populated because in Rajasthan less people live in per km^2 as compared to UP.

Chapter-8: Comparing Quantities

Exercise 8.2 (Page 164)

Q1. Convert the given fractional numbers to percent.

(a) $\frac{1}{8}$ (b) $\frac{5}{4}$ (c) $\frac{3}{40}$ (d) $\frac{2}{7}$

Difficulty Level: Easy

What is given/known?
Fractional numbers.

What is unknown?
Conversion of Fractional numbers into percentage.

Reasoning:
To convert fraction into percentage we will have to multiply the fraction by 100 because 1% means 1 part of 100 i.e. 1/100.

Solution:

$$(a)\ \frac{1}{8} = \frac{1}{8} \times 100\%$$
$$= 12.5\%$$

$$(b)\ \frac{5}{4} = \frac{5}{4} \times 100\%$$
$$= 125\%$$

$$(c)\ \frac{3}{40} = \frac{3}{40} \times 100\%$$
$$= 7.5\%$$

Q2. Convert the given decimal fractions to per cents.

(a) 0.65 (b) 2.1 (c) 0.02 (d) 12.35

Difficulty Level: Easy

What is given/known?
Numbers in the decimal form.

What is unknown?
Per cent form of the given numbers.

Reasoning:

First convert the decimal form into fractions and after that multiply the fraction with 100 to convert it into percentage.

Solution:

(a) $0.65 = \frac{65}{100}$

$\frac{65}{100} \times 100 = 65\%$

(b) $2.1 = \frac{21}{10}$

$\frac{21}{10} \times 100 = 210\%$

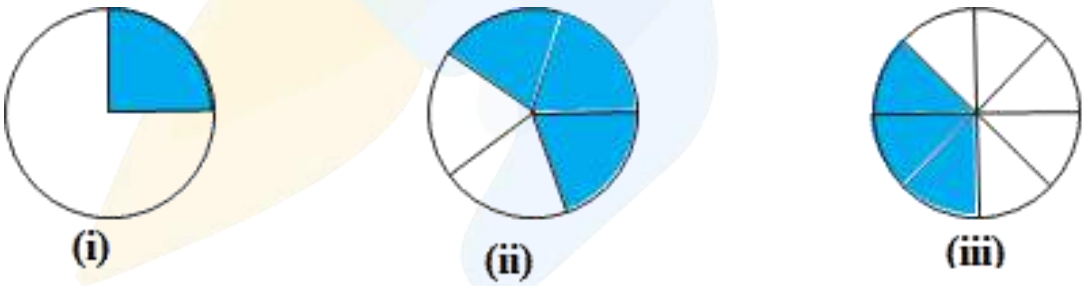
(c) $0.02 = \frac{2}{100}$

$\frac{2}{100} \times 100 = 2\%$

(d) $12.35 = \frac{1235}{100}$

$\frac{1235}{100} \times 100 = 1235\%$

Q3. Estimate what part of the figures is coloured and hence find the per cent which is coloured.



(i)

Difficulty Level: Low

What is given/known?

The part of the figures which is coloured .

What is unknown?

What part of the figures is coloured and also the per cent which is coloured.

Reasoning:
In this question first find the total number of parts of the figure and then the coloured parts. The fraction of coloured part is obtained by dividing number of coloured part with total number of parts.To find the percentage multiply the given fraction by 100.

Solution:

(i) In this figure, one part out of four parts is coloured. So the fraction of coloured part is $\frac{1}{4}$. Convert the fraction into percentage by multiplying the fraction with 100.

$$\text{Percentage of coloured part} = \frac{1}{4} \times 100$$
$$= 25\%$$

(ii) In this figure, three parts out of five parts are coloured. Hence the fraction of coloured parts is $\frac{3}{5}$.

$$\text{Percentage of coloured part} = \frac{3}{5} \times 100$$
$$= 60\%$$

(iii) In this figure, three parts out of eight parts are coloured. Hence the fraction of coloured parts is $\frac{3}{8}$.

$$\text{Percentage of coloured part} = \frac{3}{8} \times 100$$
$$= 37.5\%$$

Q4. Find:

(a) 15% of 250 (b) 1% of 1 hour (c) 20% of Rs 2500 (d) 75% of 1 kg

Difficulty Level: Low

What is given/known?
Some quantities (numbers).

What is unknown?
The per cent of the given quantities (numbers).

Reasoning:
First convert the given percentage into fraction by dividing it by 100 then multiply it with the given quantity (number) to get the answer.

Solution:

(a) 15% of 250

$$15\% = \frac{15}{100}$$

$$15\% \text{ of } 250 = \frac{15}{100} \times 250$$

$$= 37.5\%$$

(b) 1% of 1 hour

$$1\% = \frac{1}{100}$$

$$1\% \text{ of } 1 \text{ hour } = \frac{1}{100} \times 60\text{min}$$

$$= 0.6 \text{ minutes}$$

(c) 20% of Rs 2500

$$20\% = \frac{20}{100}$$

$$20\% \text{ of Rs } 2500 = \frac{20}{100} \times 2500$$

$$= \text{Rs}\,500$$

(d) 75% of 1kg

$$75\% = \frac{75}{100}$$

$$75\% \text{ of } 1\text{kg} = \frac{75}{100} \times 1000\text{gms}$$

$$= 750\text{gms}$$

Q5. Find the whole quantity if

(a) 5% of it is 600.
(b) 12% of it is Rs 1080.
(c) 40% of it is 500 km.
(d) 70% of it is 14 minutes.
(e) 8% of it is 40 litres.

Difficulty Level: Low

What is given/known?
Percentage of a quantity.

What is unknown?
The whole quantity.

Reasoning:
First convert the percentage into fraction and assume the total quantity as A.

Solution:

(a) 5% of it is 600.

Assume whole quantity to be A. $5\% = \frac{5}{100}$. Since, 5% of it is 600

$$\text{So, } \frac{5}{100} \times A = 600$$

$$\text{Or } A = 600 \times \frac{100}{5}$$

$$= 12000$$

(b) 12% of it is Rs 1080.

Assume total amount to be A. Since, 12% of A is Rs 1080.

$$\text{So, } \frac{12}{100} \times A = 1080$$

$$\text{Or } A = 1080 \times \frac{100}{12}$$

$$= 9000$$

(c) 40% of it is 500 km.

Assume total distance to be A. Since, 40% of A is 500 km.

$$\text{So, } \frac{40}{100} \times A = 500$$

$$\text{Or } A = 500 \times \frac{100}{40}$$

$$= 1250 \text{ km}$$

(d) 70% of it is 14 minutes.

Assume total time to be A. Since, 70% of it is 14 minutes.

$$\text{So, } \frac{70}{100} \times A = 14$$

$$\text{Or } A = 14 \times \frac{100}{70}$$

$$= 20 \text{ minutes}$$

(e) 8% of it is 40 litres.

Assume total amount to be A. Since, 8% of A is 40 litres

$$\text{So, } \frac{8}{100} \times A = 40$$

$$\text{Or } A = 40 \times \frac{100}{8}$$

$$= 500 \text{ litres}$$

Q6. Convert given per cents to decimal fractions and also to fractions in simplest forms:

(a) 25% (b) 150% (c) 20% (d) 5%

Difficulty Level: Low

What is given/known?

Percentages.

What is unknown?

Decimal fractions and fractions in simplest forms of given percentages.

Reasoning:

To convert given percentage into decimal fractions, divide it by 100 and to convert the fraction to its simplest form, divide both the numerator and denominator by the common factor. Repeat this process until there are no more common factors. The fraction thus obtained is the simplest form of the fraction.

Solution.

(a) 25%

$$\text{So, decimal fraction will be} = \frac{25}{100}$$
$$= 0.25$$
$$\text{\& Simplest form of fraction will be } \frac{25}{100} = \frac{5}{20}$$
$$= \frac{1}{4}$$

(b) 150%

$$\text{So, decimal fraction will be} = \frac{150}{100}$$
$$= 1.50$$
$$\text{\& Simplest form of fraction will be } \frac{150}{100} = \frac{30}{20}$$
$$= \frac{3}{2}$$

(c) 20%

$$\text{So, decimal fraction will be} = \frac{20}{100}$$
$$= 0.20$$
$$\text{\& Simplest form of fraction will be } \frac{20}{100} = \frac{2}{10}$$
$$= \frac{1}{5}$$

(d) 5%

$$\text{So, decimal fraction will be} = \frac{5}{100}$$
$$= 0.05\%$$
$$\text{\& Simplest form of fraction will be } \frac{5}{100} = \frac{1}{20}$$

Q7. In a city, 30% are females, 40% are males and remaining are children. What percent are children?

Difficulty Level: Low

What is given/known?
In a city, 30% are females, 40% are males and remaining are children.

What is unknown?
Percentage of children.

Reasoning:
Consider the total percentage as 100%. Since, percentage of males and females is known, percentage of children can be obtained by subtraction total percentage of males and females from 100%.

Solution:
Total percentage is equal to 100%. Out of 100% ,30% are females, 40% are males and the remaining are children.

$$\text{So, the percentage of children} = 100\% - 30\% - 40\%$$
$$= 30\%$$

Q8. Out of 15,000 voters in a constituency, 60% voted. Find the percentage of voters who did not vote. Can you now find how many actually did not vote?

Difficulty Level: Low

What is given/known?
Out of total voters (15,000) in a constituency, the percentage of voter (60%) that voted

What is unknown?
The percentage of voters who did not vote and number of voters that did not vote.

Reasoning:
Consider total percentage of voters as 100%. Since the percentage of voters that voted is given, percentage of voters that did not vote can be obtained. The percentage can be used to obtain the number of voters that did not vote.

Solution:
Total percentage of voters is equal to 100%. Percentage of voters that voted is given to be 60%.

So, the percentage of voters who did not vote will be (100% − 60%) = 40%

$$\text{The number of voters who did not vote} = 40\% \text{ of } 15{,}000$$
$$= \frac{40}{100} \times 15{,}000$$
$$= 6{,}000$$

Q9. Meeta saves Rs 400 from her salary. If this is 10% of her salary. What is her salary?

Difficulty Level: Low

What is given/known?
The amount of money that Meeta saved from her salary and the percentage of her salary that is equal to her saving.

What is unknown?
Salary of Meeta.

Reasoning:
Assume the salary to be A. Since 10% of A is known, 100% of A (total salary) of Meeta can be obtained.

Solution:
Let the total salary be Rs A. If 10% of A is 400

$$\text{Thus, } \frac{10}{100} \times A = 400$$
$$\text{Or } \quad A = 400 \times \frac{100}{10}$$
$$= 4000$$

Thus, the total salary is Rs. 4000

Q10. A local cricket team played 20 matches in one season. It won 25% of them. How many matches did they win?

Difficulty Level: Low

What is given/known?
Matches played by a cricket team in a season and percentages of matches won.

What is unknown?
Number of matches won by the team.

Reasoning:

Matches won by local cricket team is 25% of 20.

Solution:

$$\text{Matches won} = 25\% \text{ of } 20$$
$$= \frac{25}{100} \times 20$$
$$= 5.$$

So, the matches won are 5.

Chapter-8: Comparing Quantities

Exercise 8.3 (Page 171)

Q1. Tell what the profit or loss in the following transactions is. Also find profit per cent or loss per cent in each case.

a) Gardening shears bought for Rs 250 and sold for Rs 325.
b) A refrigerator bought for Rs 12,000 and sold at Rs 13,500.
c) A cupboard bought for Rs 2,500 and sold at Rs 3,000.
d) A skirt bought for Rs 250 and sold at Rs 150.

Difficulty Level: Low

What is given/known?
Cost price and selling price of different items.

What is unknown?
Profit and Loss percent in each case.

Reasoning:
Cost price is the price on which the product is bought. Selling price is the price at which the product is sold. If selling price is greater than the cost price, then there is profit and if cost price is greater than selling price then there is loss. This can be represented as

Profit = Selling price - Cost price
And Loss = Cost price – Selling price

Also, to find percentage profit/loss, we will divide the profit or loss with cost and then multiply it by 100.

$$\text{Profit / Loss \%} = \frac{\text{Profit (or Loss)}}{\text{Cost Price}} \times 100$$

Solution:

a) In this question gardening shears are bought for Rs 250 and sold for Rs 325. Since sale price is greater than cost price, so there is a profit

$$\begin{aligned}\text{Profit} &= \text{Selling price} - \text{Cost price}\\ &= 325 - 250\\ &= \text{Rs } 75\end{aligned}$$

$$\begin{aligned}\text{And Profit \%} &= \frac{\text{Profit}}{\text{Cost Price}} \times 100\\ &= \frac{75}{250} \times 100\\ &= \frac{750}{25}\\ &= 30\%\end{aligned}$$

b) In this question refrigerator bought for Rs 12,000 and sold at Rs 13,500. Since sale price is greater than cost price so there is a profit.

$$\text{Profit} = \text{Selling price} - \text{Cost price}$$
$$= 13500 - 12000$$
$$= \text{Rs } 1500$$

$$\text{And Profit\%} = \frac{\text{Profit}}{\text{Cost Price}} \times 100$$
$$= \frac{1500}{12000} \times 100$$
$$= \frac{150000}{12000}$$
$$= 12.5\%$$

c) In this question sale price of cupboard is Rs 2,500 and cost price is Rs 3,000. Since sale price is greater than cost price so there is profit

$$\text{Profit} = \text{Selling price} - \text{Cost price}$$
$$= 3000 - 2500$$
$$= \text{Rs } 500$$

$$\text{And Profit \%} = \frac{\text{Profit}}{\text{Cost Price}} \times 100$$
$$= \frac{500}{2500} \times 100$$
$$= 20\%$$

d) Cost price of skirt is Rs 250 and sale price is Rs 150. Since, cost price is greater than sale price so there is Loss

$$\text{Loss} = \text{Cost price} - \text{Sale price}$$
$$= 250 - 150$$
$$= \text{Rs}100$$

$$\text{And Loss \%} = \frac{\text{Loss}}{\text{Cost Price}} \times 100$$
$$= \frac{100}{250} \times 100$$
$$= 40\%$$

Q2. Convert each part of the ratio to percentage:

(a) 3:1 (b) 2:3:5 (c) 1:4 (d) 1:2:5

Difficulty Level: Low

What is given/known?

Different ratios are given

What is unknown?

Percentage form of the given ratios.

Reasoning:

To convert each part of ratio into percentage we will first divide each part with total of all parts and then multiply it with 100 to convert each part into percentage.

Solution:

(a) In the ration 3:1, total number of parts $= 3+1$

$= 4$

$$\text{Percentage of first part} = \frac{3}{4}\times 100$$

$$=75\%$$

$$\text{Percentage of second part} = \frac{1}{4}\times 100$$

$$=25\%$$

(b) In 2:3:5, total number of parts = 2 + 3 + 5

$= 10$

$$\text{Percentge of first part} = \frac{2}{10}\times 100$$

$$=20\%$$

$$\text{Percentge of second part} = \frac{3}{10}\times 100$$

$$=30\%$$

$$\text{Percentge of third part} = \frac{5}{10}\times 100$$

$$=50\%$$

(c) In ratio 1:4, total number of parts = 1 + 4

$= 5$

$$\text{Percentge of first part} = \frac{1}{5}\times 100$$

$$=20\%$$

$$\text{Percentge of second part} = \frac{4}{5}\times 100$$

$= 80\%$

(d) In ratio 1:2:5, total number of parts = 1 + 2 + 5

$$= 8$$

$$\text{Percentge of first part} = \frac{1}{8} \times 100$$

$$= 12.5\%$$

$$\text{Percentge of second part} = \frac{2}{8} \times 100$$

$$= 25\%$$

$$\text{Percentge of third part} = \frac{5}{8} \times 100$$

$$= 62.5\%$$

Q3. The population of a city decreased from 25,000 to 24,500. Find the percentage decrease.

Difficulty Level: Low

What is given/known?
The change in the population of a city (from 25,000 to 24,500)

What is unknown?
The percentage decrease

Reasoning:
The decrease in population can be calculated by subtracting earlier (initial) population from present (final) population and percentage decrease in population can be obtained using the formula

$$\text{Percentage decrease} = \frac{\text{Change in quantity}}{\text{Initial quantity}} \times 100$$

Solution:
Decrase in city population = 25000 – 24500

$$= 500$$

$$\text{Percentage decrease} = \frac{\text{Change in population}}{\text{Initial population}} \times 100$$

$$= \frac{500}{25000} \times 100$$

$$= 2\%$$

Q4. Arun bought a car for Rs 3,50,000. The next year, the price went up to Rs 3,70,000. What was the percentage of price increase?

Difficulty Level: Low

What is given/known?

Price at which Arun bought a car (Rs 3,50,000) and the price of the car next year (Rs 3,70,000).

What is unknown?

The percentage of price increase

Reasoning:

The increase in price can be calculated by subtracting earlier (initial) price from the next year (final) price and percentage increase in price can be obtained using the formula

$$\text{Percentage increase} = \frac{\text{Change in quantity}}{\text{Initial quantity}} \times 100$$

Solution:

$$\text{Increase in price} = 3,70,000 - 3,50,000$$
$$= 20000$$

$$\text{Percentage increase} = \frac{\text{Change in quantity}}{\text{Initial quantity}} \times 100$$
$$= \frac{20000}{350000} \times 100$$
$$= \frac{200}{35}$$
$$= 5\frac{5}{7}\%$$

Q5. I buy a T.V. for Rs 10,000 and sell it at a profit of 20%. How much money do I get for it?

Difficulty Level: Low

What is given/known?

Cost price (Rs 10,000) of T.V. and profit on selling it (20%).

What is unknown?

The price at which TV was sold (selling price).

Reasoning:
In this question profit percent is given. Total profit can be calculated by multiplying cost price by profit percent and dividing by 100. Selling price can be obtained by adding total profit to the cost price.

Solution:
Cost price of TV = 10000 and Profit percent = 20%

$$\text{Total profit} = \frac{20}{100} \times 10000$$
$$= \text{Rs.}2000$$

So, selling price will be = Cost price + profit

Thus, Selling price = 10000 + 2000 = Rs 12000

Q6. Juhi sells a washing machine for Rs 13,500. She loses 20% in the bargain. What was the price at which she bought it?

Difficulty Level: moderate

What is given/known?
Price at which Juhi sold the washing machine (Rs 13,500) and loss percent she made (20%).

What is unknown?
The price at which Juhi bought the washing machine.

Reasoning:
This question can be solved by assuming the cost price of the washing machine as Rs 100. Since loss is 20%, the selling price will be Rs 80. Now a simple logic can be used. If selling price is Rs 80 then cost price is Rs 100. What will be the cost price if selling price is Rs 13500.

Solution:
Let us assume cost of washing machine = Rs 100

Loss = 20% of cost price = Rs 20

So, the selling price will be = Cost price – loss
$$= 100 - 20$$
$$= \text{Rs}80$$

If selling price is Rs 80, the cost price = Rs 100

$$\text{If selling price is Rs}13{,}500 \text{ the cost price} = \frac{100}{80} \times 13500$$
$$= \text{Rs}16875$$

Q7.

(i) Chalk contains calcium, carbon and oxygen in the ratio 10:3:12. Find the percentage of carbon in chalk.

(ii) If in a stick of chalk, carbon is 3g, what is the weight of the chalk stick?

Difficulty Level: Medium

What is given/known?

(i) Ratio in which chalk contains calcium, carbon and oxygen (10:3:12).

(ii) Weight of carbon in stick of chalk (3g).

What is unknown?

(i) The percentage of carbon in chalk.

(ii) what is the weight of the chalk stick if it contains 3g carbon.

Reasoning:

(i) To find the percentage of carbon, use the following formula

$$\text{Percentage of carbon} = \frac{\text{Parts of carbon}}{\text{Sum of all parts}} \times 100$$

(ii) The concept of percentage can be used to find the total quantity.

Solution:

Parts of carbon = 3 and sum of all parts = 10 + 3 + 12 = 25

$$\text{Percentage of carbon} = \frac{\text{Parts of carbon}}{\text{Sum of all parts}} \times 100$$

$$= \frac{3}{25} \times 100$$

$$= 12\%$$

(ii) Carbon in the stick of chalk = 3g, and carbon percentage in chalk is 12%.

This means 12% of carbon = 3 g

Let total quantity be Q

$$\text{I.e.} \frac{12}{100} \times Q = 3$$

$$\text{Total Quantity} = 3 \times \frac{100}{12} = 25\text{g}$$

Q8. Amina buys a book for Rs 275 and sells it at a loss of 15%. How much does she sell it for?

Difficulty Level: Low

What is given/known?
The price at which Amina buys a book (Rs 275) and the loss percent (15%) she makes after selling it.

What is unknown?
The price at which she sells the book.

Reasoning:

$$\text{Loss} = \frac{\text{Loss\%}}{100} \times \text{Cost Price}$$
$$\text{Selling Price} = \text{Cost Price} - \text{Loss}$$

Solution:

Cost of book = 275 and loss = 15% of Cost price

$$\text{Total Loss} = \frac{15}{100} \times 275 = \text{Rs } 41.25$$
$$\text{So, Selling Price} = \text{Cost Price} - \text{Loss}$$
$$= 275 - 41.25$$
$$= \text{Rs } 233.75$$

Q9. Find the amount to be paid at the end of 3 years in each case:
a) Principal = Rs 1,200 at 12% p.a.
b) Principal = Rs 7,500 at 5% p.a.

Difficulty Level: Low

What is given/known?
Principal, Time and the rate of interest.

What is unknown?
Amount to be paid in three years.

Reasoning:
Simple interest can be calculated using the formula

$$\text{Simple Interest} = \frac{\text{Princial} \times \text{Rate of interest (p.a.)} \times \text{Time(in years)}}{100}$$

And amount is obtained by adding Principal to the interest

Solution:

(a) Principal = Rs 1,200 at 12% p.a.

$$\text{Simple Interest} = \frac{\text{Princial} \times \text{Rate of interest (p.a.)} \times \text{Time(in years)}}{100}$$

$$= \frac{1200 \times 12 \times 3}{100}$$

$$= \text{Rs}\,432$$

Amount = Principal + Interest

= Rs 1200 + Rs 432

= Rs 1632

So, the amount to be paid after 3 years will be Rs. 1632

(b) Principal = Rs 7,500 at 5% p.a.

$$\text{Simple Interest} = \frac{\text{Princial} \times \text{Rate of interest (p.a.)} \times \text{Time(in years)}}{100}$$

$$= \frac{7500 \times 5 \times 3}{100}$$

$$= 1125$$

Amount = Principal + Interest

= 7500 +1125

= 8625

So, the amount to be paid after 3 years will be Rs.8625

Q10. What rate gives Rs 280 as interest on a sum of Rs 56,000 in 2 years?

Difficulty Level: Low

What is given/known?

Principle, interest and number of years.

What is unknown?

Rate of interest.

Reasoning:

Rate of Interest can be calculated using the formula

$$\text{Simple Interest} = \frac{\text{Princial} \times \text{Rate of interest (p.a.)} \times \text{Time(in years)}}{100}$$

Solution:

Let us assume that rate of interest to be R.

$$\text{So, Simple Interest} = \frac{\text{Princial} \times \text{Rate} \times \text{Time}}{100}$$

$$\text{I.e.} 280 = \frac{56000 \times R \times 2}{100}$$

$$R = \frac{280 \times 100}{56000 \times 2}$$

$$= 0.25\%$$

So, the rate of interest is 0.25%

Q11. If Meena gives an interest of Rs 45 for one year at 9% rate p.a. What is the sum she has borrowed?

Difficulty Level: Moderate

What is given/known?

If Meena gives an interest of Rs 45 for one year at 9% rate p.a.

What is unknown?

What is the sum she has borrowed?

Reasoning:

This question can be solved by using the formula of simple interest

So,

$$\text{Simple Interest} = \frac{\text{Princial} \times \text{Rate} \times \text{Time}}{100}$$

Solution:

Let us assume principal to be P

So,

$$\text{Simple Interest} = \frac{\text{Princial} \times \text{Rate} \times \text{Time}}{100}$$

$$\text{i.e. } 45 = \frac{P \times 9 \times 1}{100}$$

$$P = \frac{45 \times 100}{9 \times 1}$$

$$= 500$$

So, Meena borrowed Rs 500

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