

Chapter 7 – Percent and Percentage**Exercise – 7(A)****Question 1****Evaluate:**

(i) 55% of 160 + 24% of 50 – 36% of 150

Solution:

$$\begin{aligned} \text{Equating them in the following form} &= \frac{55 \times 160}{100} + \frac{24 \times 50}{100} - \frac{36 \times 150}{100} \\ &= 11 \times 8 + 12 - 18 \times 3 = 88 + 12 - 54 = 46 \end{aligned}$$

(ii) 9.3% of 500 – 4.8% of 250 – 2.5% of 240

Solution:

Equating them in the following form

$$\begin{aligned} &= \frac{9.3 \times 500}{100} - \frac{4.8 \times 250}{100} - \frac{2.5 \times 240}{100} \\ &= 9.3 \times 5 - 1.2 \times 10 - 0.5 \times 12 \\ &= 46.5 - 12 - 6 = 46.5 - 18 = 28.5 \end{aligned}$$

Question 2.

(i) A number is increased from 125 to 150; find the percentage increase.

Solution:

Original value = 125

New value = 150

Increase = $(150 - 125) = 25$

Increase % = $\frac{25}{125} \times 100 = 20\%$

(ii) A number is decreased from 125 to 100; find the percentage decrease.

Solution:

Original value = 125,

New value = 100

Decrease = $(125 - 100) = 25$

Decrease % = $\frac{25}{125} \times 100 = 20\%$

Question 3.

Find:

(i) 45 is what percent of 54?

Solution:

Let $45 = x$ percent of $54 = \frac{54 \times x}{100}$

$$\Rightarrow x = \frac{45 \times 100}{54} = \frac{5 \times 100}{6}$$

$$= \frac{250}{3} = 83\frac{1}{3}\%$$

\therefore Required percentage = $83\frac{1}{3}\%$

Find (ii) 2.7 is what percent of 18?

Solution:

Let $2.7 = x$ percent of $18 = \frac{18 \times x}{100}$

$$\therefore x = \frac{2.7 \times 100}{18} = \frac{270}{18} = \frac{30}{2} = 15$$

\therefore Required percentage = 15%

Question 4.

(i) 252 is 35% of a certain number, find the number.

Solution:

(i) Let the number be x

By the given condition

$$252 = \frac{x \times 35}{100} = \frac{x \times 7}{20}$$

$$\therefore x = \frac{252 \times 20}{7} = 36 \times 20 = 720$$

Hence, the required number = 720

(ii) If 14% of a number is 315; find the number.

Solution:

Let the number be x

By the given condition

$$315 = \frac{x \times 14}{100}$$

$$\therefore x = \frac{315 \times 100}{14} = \frac{45 \times 100}{2} = 45 \times 50 = 2250$$

Hence the required number = 2250.

Question 5.

Find the percentage change, when a number is changed from:

(i) 80 to 100

Solution:

Original number = 80

New number = 100,

Change = $(100 - 80) = 20$

\therefore Percentage change (increase)

$$= \frac{20}{80} \times 100 = 25\%$$

(ii) 100 to 80

Solution:

Original number = 100

New number = 80

Change (100 - 80) = 20

$$\therefore \text{Percentage change (decrease)} = \frac{20}{100} \times 100 = 20\%$$

(iii) 6.25 to 7.50

Solution:

Original number = 6.25

New number = 7.50

Change (increase) = (7.50 - 6.25) = 1.25

$$\therefore \text{Increase} = \frac{1.25}{6.25} \times 100 = 20\%$$

Question 6.

An auctioneer charges 8% for selling a house. If a house is sold for Rs.2,30,500; find the charges of the auctioneer.

Solution:

Selling price of the house = Rs.2,30,500

Rate of charges of the auctioneer = 8% of selling price

\therefore Charges of the auctioneer = 8% of 2,30,500

$$= \frac{8}{100} \times 2,30,500 = \text{Rs.}18,440$$

Question 7.

Out of 800 oranges, 50 are rotten. Find the percentage of good oranges.

Solution:

Rotten oranges = 50

Number of good oranges = $800 - 50 = 750$

Percentage of good oranges = $\frac{750}{800} \times 100$

$$= \frac{750}{8} = \frac{375}{4} = 93\frac{3}{4}\%$$

Question 8.

A cistern contains 5 thousand liters of water. If 6% water is leaked. Find how many liters of water are left in the cistern.

Solution:

Water in the cistern = 5000 liters

Quantity of water leaked = $\frac{6}{100} \times 5000 = 300$ liters

Quantity of water left in the cistern

= $(5000 - 300)$ liters = 4700 liters

Question 9.

A man spends 87% of his salary. If he saves Rs. 325; find his salary.

Solution:

Let salary = Rs x

\therefore Expenditure = $\frac{87}{100}$ of x

$$= \text{Rs. } \frac{87x}{100}$$

Saving = Rs. 325

$$\therefore x - \frac{87x}{100} = 325$$

$$\frac{100x - 87x}{100} = 325 \Rightarrow \frac{13x}{100} = 325$$

$$x = \frac{325 \times 100}{13} \Rightarrow x = \frac{32500}{13}$$

$$x = 2500$$

$$\therefore \text{Salary} = \text{Rs. } 2500$$

Question 10.

(i) A number 3.625 is wrongly read as 3.265; find the percentage error.

Solution:

$$\text{Correct number} = 3.625$$

$$\text{Number wrongly read as} = 3.265$$

$$\text{Error} = 3.625 - 3.265 = 0.360$$

$$\% \text{ Error} = \frac{0.360}{3.625} \times 100$$

$$= \frac{360}{3625} \times 100 = \frac{36000}{3625} = 9.93\%$$

(ii) A number 5.78×10^3 is wrongly written as 5.87×10^3 , find the percentage error.

Solution:

$$\text{Correct number} = 5.78 \times 10^3$$

$$\text{Number wrongly written as} = 5.87 \times 10^3$$

$$\text{Error} = 5.87 \times 10^3 - 5.78 \times 10^3$$

$$= 0.09 \times 10^3$$

$$\% \text{ Error} = \frac{0.09 \times 10^3}{5.78 \times 10^3} \times 100$$

$$= \frac{0.09}{5.78} \times 100 = \frac{9}{578} \times 100 = \frac{900}{578} \%$$

$$= 1.56\%$$

Question 11.

In an election between two candidates, one candidate secured 58% of the votes polled and won the election by 18,336 votes. Find the total number of votes polled and the votes secured by each candidate.

Solution:

Since, winning candidate secured 58% of the votes polled.

∴ Losing candidate secured = (100-58)% of the votes polled = 42% of the votes polled

Difference of votes = 58 – 42 = 16% of the votes polled

We are given:

16% of votes polled = 18,336

$\frac{16}{100}$ of votes polled = 18,336

$$\Rightarrow \text{Votes polled} = 18,336 \times \frac{100}{16}$$

$$\Rightarrow \text{Votes polled} = \frac{18,33,600}{16}$$

$$\Rightarrow \text{Votes polled} = 1,14,600$$

∴ Votes secured by winning candidate

$$= \frac{58}{100} \times 1,14,600 = 66,468$$

Votes secured by losing candidate

$$= \frac{42}{100} \times 1,14,600 = 48,132$$

Votes polled = 1,14,600

Votes secured by winning candidate = 66,468

Votes secured by losing candidate = 48,132

Question 12.

In an election between two candidates, one candidate secured 47% of votes polled and lost the election by 12,366 votes. Find the total votes polled and the votes secured by the winning candidate.

Solution:

Since, the losing candidate secured 47% of the votes polled

Winning candidate secures votes = (100-47)% of the votes polled

= 53 % of the votes polled

Difference of votes = 53-47 = 6 % of the votes polled

We are given:

6% of the votes polled = 12,366

$$\frac{6}{100} \text{ of the votes polled} = 12,366$$

$$\text{Votes polled} = 12,366 \times \frac{100}{6} = \frac{1236600}{6} = 2,06,100$$

Votes secured by winning candidate

$$= \frac{53}{100} \times 2,06,100 = 1,09,233$$

$$\therefore \text{Votes polled} = 2,06,100$$

Votes secured by winning candidate = 1,09,233

Question 13.

The cost of a scooter depreciates every year by 15% of its value at the beginning of the year. If the present cost of the scooter is 8,000; find its cost:

(i) after one year

(ii) after 2 years

Solution:

Present cost of scooter = Rs.8000

The cost of scooter depreciates by 15% every year

(i) cost of scooter after one year

$$= \frac{(100-15)}{100} \times 8000 = \frac{85}{100} \times 8000 = \text{Rs. } 6800$$

(ii) cost of scooter after 2 year

$$= \frac{(100-15)}{100} \times 6800 = \frac{85}{100} \times 6800 = \text{Rs. } 5780$$

Question 14.

In an examination, the pass mark is 40%. If a candidate gets 65 marks and fails by 3 marks; find the maximum marks.

Solution:

Marks obtained by the candidate = 65

Fails by = 3 marks

Pass marks = 65 + 3 = 68

% of Pass marks = 40 %

$$\therefore \text{Required maximum marks} = \frac{100}{40} \times 68$$

$$= 10 \times 17$$

$$= 170$$

Question 15.

In an examination, a candidate secured 125 marks and failed by 15 marks. If the pass percentage was 35%. Find the maximum marks.

Solution:

Total marks secured = 125

Failed by 15 marks

$$\therefore \text{Pass marks} = 125 + 15 = 140$$

Let maximum marks = x

$$\therefore \frac{x \times 35}{100} = 140$$

$$\Rightarrow x = \frac{140 \times 100}{35} = 4 \times 100 = 400$$

Hence maximum marks = 400

