Chapter 8 – Profit Loss and Discount

Exercise – 8(A)

Question 1.

Megha bought 10 note-books for Rs.40 and sold them at Rs. 4.75 per note-book. Find, her gain percent.

Solution:

C.P. of 10 note-books = Rs.40

S.P. of 10 Note-books @ Rs4.75 per note book

  = 4.75 ×10 = Rs.47.50

Gain = S.P. - C.P.

    = Rs.47.50 - Rs.40 = Rs.7.50

Gain %=$\frac{Gain}{C.P.} \times 100$

$= \frac{7\cdot50}{40} \times 100 = \frac{750}{40}\%$

$= \frac{75}{4}\% = 18\frac{3}{4}\%$

Question 2 .

A fruit-seller buys oranges at 4 for Rs. 3 and sells them at 3 for Rs.4. Find his profit percent.

Solution:

Let number of oranges bought = 12

  (Note: L.C.M. of 4 and 3 = 12)

∴ C.P. of oranges=Rs.$\frac{3}{4} \times 12$ = Rs.9

And S.P. of oranges = Rs.$\frac{4}{3} \times 12$ = Rs.16

        Profit = 16 – 9 = Rs.7

Profit% = $\frac{Profit}{C.P} \times 100$

$$= \frac{7}{9} \times 100 = \frac{700}{9}\% = 77\frac{7}{9}\%$$

Question 3.

A man buys a certain number of articles at 15 for Rs. 112.50 and sells them at 12 for Rs. 108

Find:

(i) his gain a percent;

(ii) the number of articles sold to make a profit of Rs.75.

Solution:

Let number of articles bought = 60

∵ L.C.M of 15 and 12= 60

∴ C.P. of the articles=Rs.$\frac{112.50}{15} \times 60$

= Rs.$\frac{112.50 \times 60}{15}$ = 112.508 × 4 =Rs.450.00

and S.P. of the articles = Rs.$\frac{108}{12} \times 60$

$= Rs. 108 \times 5 = Rs. 540.$

(i) To find his gain as percent;

Gain = S.P – C.P. = Rs.540 – Rs.450 = Rs.90

∴ Gain % = $\frac{Gain}{C.P} \times 100$

$= \frac{90}{450} \times 100 = \frac{100}{5} = 20\%$

(ii) To find the number of articles sold to make a profit of Rs.75.

Solution:

To make a profit of Rs.90, the number of articles needed to be sold = 60

To make a profit of Re.1, the number of articles needed to be sold = $\frac{60}{90}$

To make a profit of Rs.75 the number of articles needed to be sold = $\frac{60}{90} \times 75 = \frac{4500}{90} = 50$

Question 4.

A boy buys an old bicycle for Rs. 162 and spends Rs.18 on its repairs before selling the bicycles for Rs. 207. Find his gain or loss percent.

Solution:

Buying price of the old bicycle = Rs.162

Money spent on repairs = Rs.18

Real C.P. of the bicycle = $162 + 18 = Rs.180$

S.P. of the bicycle = Rs.207

Profit= S.P. – C.P. = $207 - 162 = Rs.45$

Gain%= $\frac{Profit}{C.P.} \times 100 = \frac{45}{180} \times 100 = \frac{100}{4} = 25\%$

Question 5.

An article is bought from Jaipur for Rs.4800 and is sold in Delhi for Rs. 5,820. If Rs. 1,200 is spent on its transportations, etc. find the loss or the gain as percent.

Solution:

Cost price = Rs.4,800

Selling Price = Rs.5,820

Transport etc. charges = Rs.1,200

Total cost price = Rs 4800 + Rs. 1,200 = Rs. 6,000

Loss = Rs. 6000 – Rs.5820 = Rs. 180

∴ Loss%= $\frac{180}{6000} \times 100 = 3\%$

Question 6.

Mohit sold a T.V. for Rs. 3,600; gaining one-sixth of its selling price. Find:

(i) The gain

(ii) The cost price of the TV.

(iii) The gain percent.

Solution:

S.P. of T.V. = Rs.3,600

(i) To find the gain

Gain = $\frac{1}{6}$ of (3600) = $\frac{1}{6}$ × 3600 = Rs. 600

Thus, gain = Rs.600

(ii) To find the cost price of the TV.

Cost price = S.P – gain = 3600 – 600 = Rs.3000

(iii) To find the gain percent.

Gain % = $\frac{600}{3000}$ × 100 = $\frac{60}{3}$ = 20%

Question 7.

By selling a certain number of goods for Rs. 5,500 a shopkeeper loses equal to one-tenth of their selling price. Find:

(i) the loss incurred

(ii) the cost price of the goods

(iii) the loss as percent.

Solution:

S.P. = Rs. 5,500

(i) Loss incurred:

Loss = $\frac{1}{10}$ of (S.P.) = $\frac{1}{10}$ × 5500 = Rs. 550)

Loss incurred = Rs.550

(ii) Cost price:

C.P = Rs.5,500 + Rs.550 = Rs.6,050

(iii) Loss as percent:

$$Loss\% = \frac{550 \times 100}{6050} = \frac{10 \times 100}{110} = \frac{100}{11} = 9\frac{1}{11}\%$$

Question 8.

The selling price of a sofa-set is $\frac{4}{5}$ times of its cost price. Find the gain or the loss as percent.

Solution:

Let the cost price (C.P) = 1

$$S.P. = 1 \times \frac{4}{5} = \frac{4}{5}$$

$$\therefore Loss = 1 - \frac{4}{5} = \frac{5-4}{5} = \frac{1}{5}$$

[∵ Loss = C.P. – S.P.]

$$\therefore Loss\% = \frac{Loss}{C.P.} = \frac{\frac{1}{5}}{1} \times 100 = \frac{1}{5} \times 100 = 20\%$$

Question 9.

The cost price of an article is 4/5 times of its selling price. Find the loss or the gain as percent.

Solution:

Let S.P. = 1

$$C.P. = \frac{4}{5} \times 1 = \frac{4}{5}$$

Formula for finding the gain% is given below,

∵ Gain = Selling Price – Cost Price

I.e. Gain = S.P. – C.P.

$$= 1 - \frac{4}{5} = \frac{5-4}{5} = \frac{1}{5}$$

$$\therefore Gain \% = \frac{Gain}{C.P} \times 100 = \frac{\frac{1}{5}}{\frac{4}{5}} \times 100$$

$$=\frac{1}{5} \times \frac{5}{4} \times 100 = 25\%$$

Question 10.

A shopkeeper sells his goods at 80% of their cost price. Find the percent gain or loses.

Solution:

Let C.P of good = Rs.100

∴ S.P. of goods = $\frac{80}{100} \times 100 = Rs.80$

Loss = C.P - S.P = Rs.100 – Rs.80 = Rs.20

Formula for finding Loss% = $\frac{Loss}{C.P} \times 100 = \frac{20}{100} \times 100 = 20\%$

Question 11.

The cost price of an article is 90% of its selling price. What is the profit or the loss as percent?

Solution:

Let S.P of the article = Rs.100

∴ C.P. of the article = $\frac{90}{100} \times 100$ = Rs.90

Gain = Rs.100 – Rs.90 = Rs.10

Gain% = $\frac{Gain}{C.P} \times 100$

$= \frac{10}{90} \times 100 = \frac{100}{9}\% = 11\frac{1}{9}\%$

Question 12.

The cost price of an article is 30 percent less than its selling price. Find the profit or loss as percent.

Solution:

Let S.P of the article = Rs.100

30% of S.P. = Rs.$\frac{30}{100} \times 100 = Rs. 30$

∴ C.P. of the article = 100 – 30 = Rs.70

Profit = S.P - C.P

Rs.100 - Rs.70 = Rs.30

Profit % = $\frac{Profit}{C.P} \times 100 = \frac{30}{70} \times 100 = \frac{300}{7}\% = 42\frac{6}{7}\%$

Question 13.

A shop-keeper bought 300 eggs at 80 paisa each. 30 eggs were broken in transaction and then he sold the remaining eggs at one rupee each. Find his gain or loss as percent.

Solution:

C.P. of 300 eggs at 80 paise each

= 300 ✕ 80 = 2400 paise = Rs.240

No. of eggs which were broken in transaction = 30

Remaining eggs = 300 - 30 = 270

S.P. of eggs at Rs.1 each = 270 ✕ 1 = Rs.270

Gain = S.P - C.P. = Rs.270 - Rs.240 = Rs.30

Gain % = $\frac{Gain}{C.P} \times 100$

= $\frac{30}{240} \times 100$

= $\frac{100}{8}\% = 12.5\%$

Question 14.

A man sold his bicycle for Rs. 405 losing one-tenth of its cost price, find:

(i) its cc price;

(ii) the loss percent

Solution:

(i) Let C.P. of the bicycle = Rs.x

∴ Loss = Rs.$\frac{x}{10}$

S.P. = C.P. - Loss

$= x - \frac{x}{10}$

But, we are given S.P. = Rs.405.

∴ $x - \frac{x}{10} = 405$

⇒ $\frac{10x - x}{10} = 405$

⇒ $\frac{9x}{10} = 405 \Rightarrow x = 405 \times \frac{10}{9}$

⇒ $x = \frac{4050}{9} \Rightarrow x = 450$

∴ C.P. $= Rs.450$

(ii) the loss percent.

Loss $= \frac{x}{10}$

$= \frac{450}{10}$ [∵ Substituting the value of x=450]

= Rs.45

Loss% $= \frac{Loss}{C.P.} \times 100 = \frac{4500}{450} = 10\%$

Question 15.

A man sold a radio-set for Rs.250 and gained one-ninth of its cost price. Find;

(i) its cost price;

(ii) the profit percent.

Solution:

(i) Let C.P. of the radio –set = Rs. x

Gain = Rs. $\frac{x}{9}$

$$S.P. = \text{Rs. } \left(x + \frac{x}{9}\right) = \left(\frac{9x+x}{9}\right) \text{Rs.} = Rs. \frac{10x}{9}$$

But, we are given S.P. of the radio-set = Rs.250

$\therefore$ $\frac{10x}{9} = 250$

$\Rightarrow x = 250 \times \frac{9}{10} \Rightarrow x = 25 \times 9 \Rightarrow x = 225$

$\Rightarrow x = 225$

$\therefore$ C.P. of the radio set $= Rs225$

(ii) the profit percent.

Profit = Rs.$\frac{x}{9}$

   = Rs.$\frac{225}{9}$ [$\because$ Substituting the value of x=225]

= Rs.25

Profit % = $\frac{Profit}{C.p} \times 100$

=$\frac{25}{225} \times 100 = \frac{25 \times 100}{225} = \frac{100}{9}$%

= $11\frac{1}{9}$%