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G.D.GOENKA PUBLIC SCHOOL

Subject: Mathematics (7th)

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Chapter 9(Ratio and Proportion)

Profit and loss

Percentage is useful in problems involving cost price and selling price. Let us recall the concepts of profit and loss.

- The price at which an article is purchased is the ***cost price (CP).***
- The price at which an article is sold is the ***selling price (SP).***
- When the selling price is greater than the cost price, there is ***profit*** or ***gain.***
  If SP > CP, Profit = SP – CP.
- When the selling price is lesser than the cost price, there is ***loss.*** If ***SP < CP, Loss = CP – SP.***
- Profit and loss percentage is calculated on the cost price only. The profit and loss percentage is given by:

$$\text{Profit \%} = \frac{\text{Profit}}{\text{CP}} \times 100\% = \frac{\text{SP} - \text{CP}}{\text{CP}} \times 100\%; \qquad \text{Loss \%} = \frac{\text{Loss}}{\text{CP}} \times 100\% = \frac{\text{CP} - \text{SP}}{\text{CP}} \times 100\%$$

The expenses including that incurred on transport, handling charges, maintenance charges and repair charges on the cost of an item are called the ***overhead expenses***.

The net cost price or the total cost price in such cases is given by:

Total cost price = Cost price of an article + Overhead expenses

Exercise 9.5

(1) Complete the following table.

	CP	SP	Profit or loss amount	Profit or loss percent
(i)	₹560	₹630	_____	_____
(ii)	₹840	₹798	_____	_____
(iii)	₹75	_____	L = ₹6	_____
(iv)	₹96	_____	_____	P = 10%
(v)	_____	₹270	_____	L = 10%

The completed table is :

	CP	SP	Profit or loss amount	Profit or loss per cent
(i)	₹560	₹630	P = ₹70	Profit percent $= \frac{70}{560} \times 100\% = 12.5\%$
(ii)	₹840	₹798	L = ₹42	Loss percent $= \frac{42}{840} \times 100\% = 5\%$
(iii)	₹75	₹69	L = ₹6	Loss percent $= \frac{6}{75} \times 100\% = 8\%$
(iv)	₹96	₹105.6	P = 10% of ₹ 96 = ₹9.60	P = 10%
(v)	90% of CP = 270 CP = ₹ $\frac{270}{90} \times 100$ = ₹300	₹270	L = ₹300 – ₹270 = ₹30	L = 10%

(2) A boy buys a bat for ₹145 and sells it for ₹162.40. Find his gain percent.

Gain = Selling price – Cost price = ₹162.40 – ₹145 = ₹17.4

$$\text{Gain percent} = \frac{\text{Gain}}{\text{CP}} \times 100\% = \frac{17.4}{145} \times 100\% = 12\%$$

(3) Vikas buys plastic items for ₹540 and sells them at a loss of 9%. Find the selling price.

Cost price of plastic items = ₹540 ; Loss percent = 9%

⇒ Selling price = 91% of ₹540 = 0.91 × ₹540 = ₹491.40

(4) Ranbir buys a book for ₹275 and sells it at a profit of 15%. Find the selling price.

Cost price of a book = ₹275; Profit percent = 15% ⇒ Profit = 15% of ₹275 = 0.15 × ₹275 = ₹41.25

Selling price = CP + Profit = ₹275 + ₹41.25 = ₹316.25

Write description, Q2 to Q4 in your mathematics notebook.

GDPS