

Class 8: Chapter 14 – Profit and Loss – Exercise 14A

Q1. Find the gain or loss % when:

i.) C.P. = Rs. 750, S.P. = Rs.875

$$\text{gain \%} = \left(\frac{875 - 750}{750} \right) \times 100 = 16\frac{2}{3}\%$$

ii.) C.P. = Rs. 126, S.P. = Rs. 94.50

$$\text{loss \%} = \left(\frac{126 - 94.50}{126} \right) \times 100 = 25\%$$

iii.) C.P. = Rs. 80.40, S.P. = Rs. 68.34

$$\text{loss \%} = \left(\frac{80.40 - 68.34}{80.40} \right) \times 100 = 15\%$$

iv.) C.P. = Rs. 58.75, S.P. = Rs. 51.70

$$\text{loss \%} = \left(\frac{58.75 - 51.70}{58.75} \right) \times 100 = 12\%$$

Q2. Ranjit purchased a big box for Rs. 5248 and paid Rs. 127 for its transportation. He sold it for Rs. 6020, Find in gain and loss percentage.

Answer:

$$\text{Total C.P.} = 5248 + 127 = 5375 \text{ Rs.}$$

$$\text{S.P.} = 6020 \text{ Rs.}$$

$$\text{gain \%} = \left(\frac{6020 - 5375}{5375} \right) \times 100 = 12\%$$

Q3. Ahmed purchased an old scooter for Rs. 14625 and spent Rs. 3225 on its repair. Then he sold it for Rs.16422. find his gain or loss%.

Answer.

$$\text{C.P.} = 14625 + 3225 = 17850 \text{ Rs.}$$

$$\text{S.P.} = 16422 \text{ Rs.}$$

$$\text{loss \%} = \left(\frac{17850 - 16422}{17850} \right) \times 100 = 8\%$$

Q4. A man buys two cricket bats, one for Rs.1360 and the other for Rs. 1040. He sells the first bat at a gain of 15% and the second bat at a loss of 15%. Find his gain or loss on entire transaction.

Answer.

$$C.P. \text{ of first bat} = 1360 \text{ Rs.}$$

$$S.P. \text{ of first bat} = 1360 \left(1 + \frac{15}{100}\right) = 1564 \text{ Rs.}$$

$$C.P. \text{ of 2nd bat} = 1040 \text{ Rs.}$$

$$S.P. \text{ of 2nd bat} = 1040 \left(1 - \frac{15}{100}\right) = 884 \text{ Rs.}$$

$$\text{Total C.P.} = 1360 + 1040 = 2400 \text{ Rs.}$$

$$\text{Total S.P.} = 1564 + 884 = 2448 \text{ Rs.}$$

Hence

$$\text{gain \%} = \left(\frac{2448 - 2400}{2400}\right) \times 100 = 2\%$$

Q5. Mark brought 20 dozen note books for Rs. 156 per dozen. He sold 8 dozen of them at 10% gain and the remaining 12 dozen at 20% gain. What is his % in whole transaction?

Answer:

$$\text{Total C.P.} = 20 \times 156 = 3120 \text{ Rs.}$$

$$S.P. \text{ of 8 dozen} = 8 \times 156 \times \left(1 + \frac{10}{100}\right) = 1372.8 \text{ Rs.}$$

$$S.P. \text{ of 12 dozen} = 12 \times 156 \times \left(1 + \frac{20}{100}\right) = 2246.4 \text{ Rs.}$$

$$\text{Total S.P.} = 1372.8 + 2246.4 = 3619.2 \text{ Rs.}$$

$$\text{Gain \%} = \left(\frac{3619.2 - 3120}{3120}\right) \times 100 = 16\%$$

Q6 John brought 25kg of rice at Rs. 48/kg and 35kg of rice at Rs. 60/kg. He sold the mixture at Rs. 66/kg. Find his gain or loss %

Answer:

$$C.P. 1 = 25 \times 48 = 1200 \text{ Rs.}$$

$$C.P. 2 = 35 \times 60 = 2100 \text{ Rs.}$$

$$\text{Total C.P.} = 1200 + 2100 = 3300 \text{ Rs.}$$

$$\text{Total S.P.} = 60 \times 66 = 3960 \text{ Rs.}$$

$$\text{Gain \%} = \left(\frac{3960 - 3300}{3300}\right) \times 100 = 20\%$$

Q7 If the selling price of an article is $\frac{4}{5}$ th of its cost price, find the loss percent.

Answer.

Let the C.P. = x

Then S.P. = $\frac{4}{5}x$

$$\text{loss \%} = \left(\frac{x - \frac{4}{5}x}{x} \right) \times 100 = 20\%$$

Q8. If the selling price of an article is $1\frac{1}{3}$ of its cost price find the gain %.

Answer.

Let the C.P. = x

Then S.P. = $1\frac{1}{3}x = \frac{4}{3}x$

$$\text{gain \%} = \left(\frac{\frac{4}{3}x - x}{x} \right) \times 100 = 33\frac{1}{3}\%$$

Q9 A man sold a table for Rs. 2250 and gained $\frac{1}{9}$ th of its cost price. Find

- i.) The cost of the table
- ii.) The gain % earned by the man

Answer.

i.) S.P. of table = 2250 Rs.

Let the C.P. = x Rs.

Therefore $x + \frac{1}{9}x = 2250$

$$\frac{10}{9}x = 2250$$

$x = 2025$ Rs.

ii.) $\text{gain \%} = \left(\frac{2250 - 2025}{2025} \right) \times 100 = 11\frac{1}{9}\%$

Q10. By selling a pen for Rs. 195, man losses $\frac{1}{6}$ th of what it costs him. Find i.) The cost price of the pen ii.) Loss%

Answer.

Let. the C.P. = x

Hence

$$x - \frac{1}{16}x = 195$$

$$\text{Or } x = 208 \text{ Rs.} = \text{C.P. of pen}$$

$$\text{Loss \%} = \left(\frac{208-195}{208} \right) \times 100 = 6.25\%$$

Q11. A cycle was sold at a gain of 10% it had been sold for Rs. 99 more; the gain would have been 12%. Find the cost of the cycle.

Answer.

$$\text{Let the C.P. of cycle} = x \text{ Rs.}$$

$$\text{S.P. if sold for 10\% gain} = 1.1x \text{ Rs.}$$

$$\text{For 12\% gain S.P.} = 1.1x + 99$$

Hence

$$\frac{1.1x + 99 - x}{x} = \frac{12}{100}$$

$$110x + 9900 - 100x = 12x$$

$$10x + 9900 = 12x$$

$$x = 4950 \text{ Rs.}$$

Q12. A bucket was sold at a loss of 8%. Had it been sold for Rs. 56 more, there would have been a gain of 8%. What is the cost price of the bucket?

Answer:

$$\text{Let C.P. of the bucket} = x \text{ Rs.}$$

$$\text{S.P.1} = 0.92x$$

$$\text{S.P.2} = 0.92x + 56$$

$$\text{Hence gain loss \%} = \frac{8}{100} = \frac{0.92x + 56 - x}{x}$$

$$\text{Or } 8x = 92x + 5600 - 100x$$

$$\text{Or } 16x = 5600$$

$$\text{Or } x = 350 \text{ Rs.}$$

Q13. The selling price of 18 books is equal to the cost price of 21 books. Find the gain or loss %.

Answer:

$$\text{Let the C.P. of 1 book} = x \text{ Rs.}$$

$$\text{C.P. of 21 books} = 21x \text{ Rs.}$$

$$\text{S.P. of 18 books} = 21x$$

$$\text{Therefore S.P. of 1 book} = \frac{21}{18}x = \frac{7}{6}x$$

$$\text{gain \%} = \left(\frac{\frac{7}{6}x - x}{x} \right) \times 100 = 16\frac{2}{3}\%$$

Q14. The cost price of 12 fans is equal to the selling price of 16 fans. Find the loss or gain %.
Answer.

Let the C.P. of one Fan = x Rs.

Therefore S.P. of 16 fans = $12x$ Rs.

$$\text{S.P. of 1 fan} = \frac{12}{16}x = \frac{3}{4}x$$

Therefore

$$\text{loss \%} = \left(\frac{x - \frac{3}{4}x}{x} \right) \times 100 = 25\%$$

Q15. On selling 250 cassettes, a man had a gain equal to the selling price of 25 cassettes. Find the gain %.
Answer.

Let C.P. = x

Let S.P. = y

Total C.P. = $250x$

Total S.P. = $250y$

Gain = $25y$

Therefore $250y - 250x = 25y$

$$\text{Or } \frac{y}{x} = \frac{250}{225}$$

$$\text{gain \%} = \left(\frac{y - x}{x} \right) \times 100$$

$$= \left(\frac{250}{225} - 1 \right) \times 100$$

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

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

Q16. On selling 36 oranges, a vendor loses the selling price of 4 oranges. Find the loss percent.

Answer:

$$\text{Let C.P.} = x$$

$$\text{Let S.P.} = y$$

$$\text{Total C.P.} = 36x$$

$$\text{Total S.P.} = 36y$$

$$\text{Loss: } 36x - 36y = 4y$$

Or

$$\frac{y}{x} = \frac{36}{40} = \frac{9}{10}$$

$$\text{loss \%} = \left(\frac{x - y}{x} \right) \times 100$$

$$= \left(1 - \frac{9}{10} \right) \times 100 = 10\%$$

Q17. Toffees are bought at 2 for a rupee and sold at 5 for Rs. 3. Find the gain or loss percent.

Answer:

$$\text{C.P. of one toffee} = \frac{1}{2} \text{ Rs.}$$

$$\text{S.P. of one toffee} = \frac{3}{5} \text{ Rs.}$$

$$\text{Gain\%} = \left(\frac{\frac{3}{5} - \frac{1}{2}}{\frac{1}{2}} \right) \times 100 = 20\%$$

Q18. Coffee costing Rs.450/kg was mixed with Chicory costing Rs. 225/kg in the ratio of 5:2 for a certain blend. If the mixture was sold at Rs.405/kg, find the gain or loss %.

Answer:

$$\text{C.P. of 5 kg of mixture} = 450 \times 5 + 225 \times 2 = 2700 \text{ Rs.}$$

$$\text{C.P. of 1 kg of mixture} = \frac{2700}{7} \text{ Rs.}$$

$$\text{S.P. of 1 kg of mixture} = \text{Rs.} \frac{405}{\text{kg}}$$

$$\text{gain \%} = \left(\frac{405 - \frac{2700}{7}}{\frac{2700}{7}} \right) \times 100 = 5\%$$