

Profit & Loss

Profit and Loss



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This Video Completely covers the problems on "Profit and Loss" which is more than sufficient for all kind of placement Exams eg: TCS/WIPRO/AMCAT/ELITMUS/CoCubes and all other placement Exams.

Profit and Loss by : Pratik Shrivastava(10 years of industry experience and best Aptitude trainer)

Profit and Loss

Cost Price-The price at which an article is purchased is called its cost price (C.P.)

Selling Price-The price at which the article is sold is called its selling price (S.P.)

Marked Price- The price which is marked for the article.

- If the cost price (C.P.) of the article is equal to the selling price (S.P.), Then there is no loss or gain.
- If the selling price (S.P.) > cost price (C.P.), then the seller is said to have a profit or gain,
Gain or Profit = S.P. - C.P.
- If the cost price (C.P.) > selling price (S.P.), then the seller is said to have a loss,
Loss = C.P. - S.P.

Profit and Loss

1. % profit = $\text{profit} / \text{CP} * 100$
2. % profit = $(\text{SP} - \text{CP}) / \text{CP} * 100$
3. % profit = $\text{profit} / \text{CP} * 100$
4. %loss = $\text{loss} / \text{CP} * 100$
5. $\text{SP} = \text{CP} * (100 + \% \text{profit}) / 100$
6. $\text{SP} = \text{CP} * (100 - \% \text{loss}) / 100$

Profit and Loss

Q1. A man buys an item at Rs. 1100 and sells it at the profit of 30 percent. Then what is the selling price of that item

A) Rs. 1210 B) Rs. 1430

C) Rs. 1640 D) Rs. 1520

Solution:

$$CP = 1100 \text{ rs}$$

$$\therefore \text{Profit} = 30\% \checkmark \checkmark$$

$$SP = CP \times \frac{(100 + \% \text{ Profit})}{100} \checkmark$$

$$= \frac{1100 \times (100 + 30)}{100} \checkmark$$

$$= 11 \times 130$$

$$= 1430$$

$$= \frac{11 \times 13}{13} \checkmark$$

Profit and Loss

Q2. A man buys an item at Rs. 1200 and sells it at the loss of 20 percent. Then what is the selling price of that item

A) Rs. 660 B) Rs. 760

C) Rs. 860 D) Rs. 960

Solution:

$$CP = 1200 \text{ rs}$$

$$\text{loss} = 20\% \checkmark$$

$$SP = CP \times \frac{(100 - \% \text{ loss})}{100}$$

$$= 1200 \times \frac{(100 - 20)}{100}$$

$$= 1200 \times \frac{80}{100} = 960$$

Profit and Loss

Q3. Sachin bought an item at Rs. 1500 and sold it at a price of Rs. 1800. find out the profit percentage.

A) 10% B) 15%

C) 20% D) 25%

Solution:

$$\checkmark CP = 1500 \text{ rs}$$

$$\checkmark SP = 1800 \text{ rs}$$

$$\begin{aligned} \text{Profit} &= SP - CP \\ &= 1800 - 1500 \\ &= 300 \end{aligned}$$

$$\therefore \text{Profit} = \frac{\text{profit}}{CP} \times 100$$

$$= \frac{300}{1500} \times 100 = 20\%$$

Profit and Loss

Q4) A man bought two hens at the same price and sold one at a gain of 20% and other at the loss of 10%. On the whole the man will _____

(1) 5% Gain (2) 4% Lose (3) Neither gain or lose (4) None of these

Solution:

Question:

H₁ H₂

CP 100rs + 100rs = ~~200~~ ✓ 100

SP 120rs + 90rs = ~~210~~ ✓ 105

St. = $\frac{100 \times (100 + 20)}{100}$

$\frac{100 \times 120}{100}$

$\frac{100 \times (100 - 10)}{100}$

100

120

90

130

30%

Profit and Loss

Q5 A man sells two horses at the same price and from one he gains 20% and from another loss of 20%. On the whole the man will

(1) 5% Gain (2) 4% Loss (3) Neither gain or lose (4) None of these

Solution: (Thick) ✓

- If two articles are sold at same price, one at a loss of $R\%$ and another at a profit of $R\%$, there will always be a net loss of $R^2/100$.
- \Rightarrow Net loss = $20^2/100 = 4\%$

$$\frac{(20)^2}{100} = \frac{400}{100} = (4.0)$$

Profit and Loss

Q6. If a shopkeeper sold a certain article at rs.220 and incurs a loss of 12%. Find the cost price of an article.

a) 195.8rs b) 250rs c) 246.4rs d) 200rs

avoid Practice ✓
loss = $CP - SP$

b. $CP = 250$ ✓

* $SP = \frac{250 \times (100 - 12\%)}{100}$

$5250 \times \frac{88}{100} = 44 = 220$

$CP \gg 220$
 $\sqrt{SP = 220}$ ✓
loss = 12% ✓

$5250 \times \frac{12}{100} = 30$
 $250 - 30 = 220$ ✓

Profit and Loss

Q7. If the cost price is 25% of selling price. Then what is the profit percent.

- a) 150% b) 200% c) 300% d) 350%

Answer:

~~Q7~~

$$\begin{aligned} \text{S.P.} &= 100 \text{ rs} \\ \text{C.P.} &= 25 \text{ rs} \\ \text{Profit} &= 100 - 25 = 75 \text{ rs} \\ \therefore \text{Profit} &= \frac{\text{Profit}}{\text{C.P.}} \times 100 \\ &= \frac{75}{25} \times 100 \\ &= 300\% \end{aligned}$$

Profit and Loss

Q8. Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is.

- a) 6/19% b) 6/17% c) 5 5/11% d) 3 5/11%

Solution:

$$\begin{aligned} \text{Alfred C.P.} &= 4700 + 800 = 5500 \\ \text{S.P.} &= 5800 \\ \text{Gain} &= \text{S.P.} - \text{C.P.} \\ &= 5800 - 5500 \\ &= 300 \\ \therefore \text{Gain \%} &= \frac{\text{Gain}}{\text{C.P.}} \times 100 = \frac{300}{5500} \times 100 \\ &= \frac{60}{11} = 5 \frac{5}{11}\% \end{aligned}$$

Profit and Loss

Q9. Akhil purchased 70kg vegetable at Rs. 420, then sold them at the rate of Rs. 6.50 per kg, find the profit percent.

- a) 8 1/3% b) 7 1/3% c) 6 1/3% d) 5 1/3%

Solution:

$$\begin{aligned} \text{S.P.} &= 6.50 \quad \text{C.P.} = 6 \\ \text{Profit} &= 6.50 - 6 = 0.50 \text{ / kg} \\ * \quad 70 \text{ kg} &\text{ ————— } 420 \\ 1 \text{ kg} &\text{ ————— } \frac{420}{70} = 6 \text{ kg} \rightarrow \text{C.P.} \\ \therefore \text{Profit} &= \frac{\text{Profit}}{\text{C.P.}} \times 100 \\ &= \frac{0.50}{6} \times 100 = \frac{50}{6} = \frac{25}{3} = 8 \frac{1}{3}\% \end{aligned}$$

$\text{C.P.} = 6 \text{ / kg}$
 $\text{S.P.} = 6.50 \text{ / kg}$

Profit and Loss

Q10 A book was sold for Rs 27.50 with a profit of 10%. If it were sold for Rs. 25.75, then would have been percentage of profit and loss?

- a) 2% Profit b) 3% Profit c) 2% Loss d) 3% Loss

Solution:

experience
 $25 + 2.5 = 27.5$
 $SP_1 = 27.50 \checkmark$
 $\text{profit} = 10\%$
 $CP = 25$
 $SP = CP \times \frac{(100 + 10)}{100}$
 $27.5 = CP \times \frac{110}{100}$
 $\checkmark CP = 2.5 \times 10 = 25$

$SP_2 = 25.75 \checkmark$
 $CP = 25 \checkmark$
 $\text{profit} = SP - CP = 25.75 - 25 = 0.75 \checkmark$
 $\% \text{ profit} = \frac{\text{profit}}{CP} \times 100 = \frac{0.75}{25} \times 100$
 $\frac{75}{25} = 3\%$

Profit and Loss

Q11 A shopkeeper fixes the marked price of an item 35% above its cost price. The percentage of discount allowed to gain 8% is

- A) 18% B) 20%
 C) 22% D) 24%

Solution:

$CP = 100 \text{ rs}$
 $MP = 135 \text{ rs}$
 $100 \text{ rs} \xrightarrow{35\%} 135 \text{ rs}$
 $135 \text{ rs} \xrightarrow{27\%} 108 \text{ rs}$
 $108 \text{ rs} \xrightarrow{8\%} 100 \text{ rs}$

$CP = 100 \text{ rs}$
 $MP = 135 \text{ rs}$
 $108 = SP$
 $MP - SP = 135 - 108 = 27$
 $\Rightarrow \frac{27}{135} \times 100 = 20\%$

Profit and Loss

Q12 A person sold two cows each for Rs.9900. If he gained 10% on one and lost 20% on the other, then which of the following is true?

- A) He Gained Rs. 200 B) He lost Rs. 200
 C) He neither gained nor lost D) None of the above

Solution:

$SP_1 = 9900$
 $\text{gain} = 10\%$
 $SP = CP \times \frac{(100 + \% \text{ profit})}{100}$
 $9900 = CP \times \frac{110}{100}$
 $CP_1 = 9000 \checkmark$

$SP_2 = 9900$
 $\text{loss} = 20\%$
 $SP = CP \times \frac{(100 - \% \text{ loss})}{100}$
 $9900 = CP \times \frac{80}{100}$
 $CP = 12375$
 $CP = 99 \times 125$
 $CP = 125 \times (100 - 1) = 12500 - 125 = 12375 \checkmark$

Profit and Loss

Q13. A person incurs a loss of 5% by selling a watch for Rs. 1140. At what price should the watch be sold to earn 5% profit.

- a) Rs.1200 b) Rs.1230 c) Rs.1260 d) Rs.1290

V.V.I

Solution:

Tricks Ratio concept ✓

Practice:

$$\Rightarrow (100-5) : \frac{SP}{1140} :: (100+5) : SP$$

$$\Rightarrow 95 : 1140 :: 105 : SP$$

loss (100-105) = 5
profit (100+5) = 105

$$SP \times 95 = 1140 \times 105$$

$$SP = \frac{1140 \times 105}{95} = 1260$$

Profit and Loss

Q14. A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profit will be.

- A) 130% B) 140% C) 150% D) 160%

Easy/simple

Solution:

✓ CP = 100rs ✓ SP = 120rs ✓ SP = 240rs ✓

140% ✓

Profit and Loss

Q15. By selling an article at Rs.800, a shopkeeper makes a profit of 25%. At what price should he sell the article so as to make a loss of 25%?

- A) Rs.720 B) Rs.640

- C) Rs.540 D) Rs.480 ✓

Similar ✓

Solution:

$$\Rightarrow \frac{SP}{800} : (100+25) :: SP : (100-25)$$

$$800 : 125 :: SP : 75$$

$$160 \times 3 = 5 \times SP$$

$$800 \times 75 = 125 \times SP$$

$$SP = 480$$

famous ✓

Profit and Loss

Q16. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percent is ?

- a) 12% b) 30% c) 50% d) 60%

Solution:

Normal md

$$\text{CP of 1 pen} = 1 \text{ rs} \checkmark$$

$$\text{CP of 12 pen} = 12 \text{ rs} = \text{SP of 8 pen}$$

$$\checkmark \text{ SP of 8 pen} = 12 \text{ rs} \checkmark$$

$$\checkmark \text{ CP of 8 pen} = 8 \text{ rs} \checkmark$$

$$\text{Profit} = \text{SP} - \text{CP} \\ = 12 - 8 = 4 \text{ rs}$$

$$\therefore \text{Profit} \% = \frac{\text{Profit}}{\text{CP}} \times 100 \\ = \frac{4}{8} \times 100 = 50\%$$

Trick

low	high
8	12

$$\frac{4}{8} \times 100 = 50\%$$

Profit and Loss

Q17. A man bought an article and sold it at a gain of 5%. If he had bought it at 5% less and sold it for Re 1 less, he would have made a profit of 10%. The C.P. of the article was

- 1) Rs 100 2) Rs 150 3) Rs 200 4) Rs 250

Solution:

$$\text{CP of article} = x \text{ rs} \checkmark \text{ (al.)}$$

$$\text{Profit} = 5\%$$

$$\text{Old SP} = x \times \frac{(100+5)}{100} = \frac{105x}{100} = \frac{21x}{20} \checkmark$$

$$\text{Old SP} - \text{New SP} = 1 \text{ rs}$$

$$\frac{21x}{20} - \frac{209x}{200} = 1 \Rightarrow x = 200$$

$$\text{CP of article now,}$$

$$\Rightarrow x \times \frac{(100-5)}{100} = \frac{95x}{100} \checkmark$$

$$\text{SP} = \frac{95x}{100} \times \frac{(100+10)}{100}$$

$$= \frac{19x}{20} \times \frac{110}{100}$$

$$\text{New SP} = \frac{209x}{200}$$

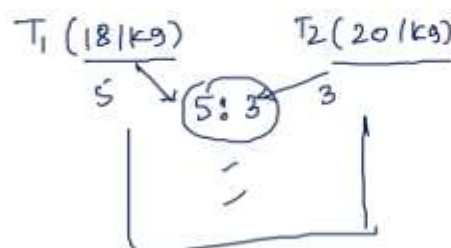
$$\frac{x}{200} = 1 \Rightarrow x = 200$$

Profit and Loss

Q18. A producer of tea blends two varieties of tea from two tea gardens one costing Rs 18 per kg and another Rs 20 per kg in the ratio 5 : 3. If he sells the blended variety at Rs 21 per kg, then his gain percent is

- a) 12% b) 13% c) 14% d) 15%

Solution:



$$= 168 - 150 \\ = 18 \text{ rs}$$

$$\text{CP} = 18 \times 5 + 20 \times 3 = 90 + 60 = 150 \text{ rs}$$

$$\frac{21 \text{ rs}}{1 \text{ kg}} \checkmark$$

$$\text{SP} = 21 \times 8 = 168 \text{ rs}$$

$$\text{CP} = 150 \text{ rs}$$

$$\text{gain} \% = \frac{\text{gain}}{\text{CP}} \times 100$$

$$\frac{6}{150} \times 100 = 4\%$$

Profit and Loss

Q19. A material is purchased for Rs. 600. If one fourth of the material is sold at a loss of 20% and the remaining at a gain of 10%, Find out the overall gain or loss percentage

- a) 4 1/2% b) 3 1/2% c) 2 1/2% d) 1 1/2%

Solution:

Material = 600rs

$\swarrow \frac{1}{4}$ $\searrow \frac{3}{4}$

20% loss \quad 10 gain

$600 \times \frac{1}{4} = 150rs$ (CP) \quad $600 - 150 = 450$ (CP)

\therefore Profit = $\frac{15}{2600} \times 100 = \frac{5}{2} = 2\frac{1}{2}\%$

SP: $150 \times \frac{(100-20)}{100} = 150 \times \frac{80}{100} = 120rs$ ✓

SP: $450 \times \frac{(100+10)}{100} = 450 \times \frac{110}{100} = 495$ ✓

SP: $120 + 495 = 615$ ✓

Profit and Loss

Q20. A grocer sells rice at a profit of 10% and uses weights which are 20% less than the market weight. The total gain earned by him will be ?

- a) 30% b) 35% c) 37.5% d) None of these

Solution:

Let 1gm = 1rs ✓

CP = 800rs SP = 1100

\therefore Profit = $\frac{300}{800} \times 100 = 37.5\%$

Grocer 20% ✓

1kg = 1000gm ✓ \quad 800gm ✓

$1000rs \times \frac{(100+10)}{100} = 1100$ ✓

CP: $800 \times 1 = 800rs$

Profit and Loss

Q21. A dealer purchases 22 pencils for Rs.20 and sells them at the rate of 10 pencils for Rs.11. His profit percent is ?

- a.0% b.20% c.21% d.22%

Solution:

Track:

22 pencil \rightarrow 20rs

10 pencil \rightarrow 11rs

Base - 100 \rightarrow CP 200 \quad 242 (SP)

\quad 100 \quad 121

\therefore Profit = 21% ✓