Profit and Loss Theory and Questions for WBP Constable Exam

Profit and Loss is the most interesting and very important topic of the Quant section for WBP Constable Exam. This is a very wide topic of the quant section in which you will learn some real-life solutions to problems and it will increase your aptitude dramatically. Concepts of profit and loss will be used in other topics as well. You must have a good command in this topic if you want to clear WBP Constable Exam.

Profit and Loss for WBP Constable Exam

As we discussed earlier, Profit and Loss is a crucial topic in the WBP Constable Exam. Gain a strong understanding of this concept through our detailed study material and practice questions. Enhance your problem-solving abilities and increase your readiness for the exam.

The weightage for Profit and Loss in the WBP Constable Exam is typically around 2-5% of the total marks. It may vary slightly from year to year, but it's an important topic to prepare for to secure a good score in the exam.

To understand the concept of profit and loss, we have to understand the concept of '**Percentage increase and decrease**'. We have discussed this topic in Percentage blog too, so let's revise this topic.

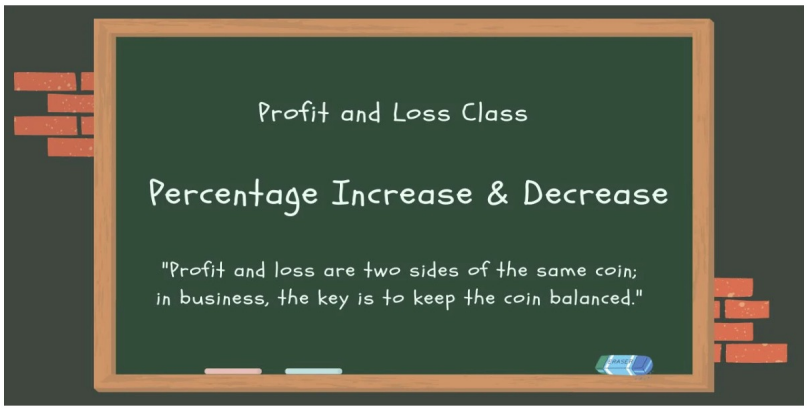
Percentage Increase or Decrease Questions

Now, there is a most important concept, to understand profit and loss, called PERCENTAGE INCREASE or DECREASE.

PERCENTAGE INCREASE or DECREASE in a quantity is the ratio, expressed in percentage, of the actual INCREASE or DECREASE in the quantity to the original amount of the quantity.

i.e. PERCENTAGE INCREASE = (Actual increase/Original quantity) × 100

PERCENTAGE DECREASE = (Actual decrease/Original quantity) × 100



E.g. If the consumption of rice by a family is increased from 60 kg/month to 75 kg/month, then the percentage increase in rice consumption is calculated as follows:

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⇒ Actual increase = 75 – 60 = 15 kg/month

⇒ Percentage increase = (actual increase/quantity at the beginning) × 100 = 15/60 × 100 = 25%

So let's start by taking a simple example and try to understand what profit/loss in a trade is.

E.g. A man buys an article for 300 rs. and sells it for 900 rs. Find the profit/loss.

We saw he buys at 300 rs. and sells that article at 900 rs. so he got additional

⇒ 900 - 300 = 600 that is the extra money he got this is called profit for him.

Let's take another scenario of loss;

E.g. Aman buys an article at Rs 900. and sells it for Rs 300. Find the profit/loss.

He buys at 900 rs. and sells at Rs 300. So, he loses 900 - 300 = Rs 600.

Whenever a purchased article is sold, then either profit is earned or loss is incurred.

Let's learn some terminologies of **Profit and Loss** concept.

Profit and Loss Basic Terminologies and Questions

Selling Price (SP): The price at which article is sold.

Cost Price (CP): The price at which article is manufactured or purchased.

Profit (SP - CP): When an article is sold at a price more than its cost price, then profit is earned.

Loss (CP - SP): When an article is sold at a price less than its cost price, then the loss is incurred.

In day-to-day life we don't talk about absolute loss/gain we talk about profit/loss in percentage terms, e.g., 15% off, 20% sale. What are they, let's talk about them.

We learn percentage is the fraction with denominator 100. So,

Profit/Loss (%) = [(Selling price - Cost price) × 100] / Cost price = [(SP - CP) × 100]/CP

In formula,

If, Selling price - Cost price > 0, then, there is profit

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If, Selling price - Cost price < 0, then, there is loss

[TIP: Profit and loss are always calculated on cost price unless otherwise stated in the question.**]**

E.g. A person buys a toy for 50 and sells it for 75. What will be his gain percent?

So, according to our question,

Selling Price = 75 & Cost Price = 50

Selling Price - Cost Price = 75 - 50 = 25 > 0. So, there would be profit.

Profit (%) = (75 - 50)/50 × 100 = 25/50 × 100 = 1/2 × 100 = 50% (Ans.)

So, he would get 50% profit.

Rearranging above formula we would get

⇒ SP = [(100 + gain%) / 100] × CP

⇒ SP = [(100 - Loss%) / 100] × CP

⇒ CP = [100 / (100 + gain%)] × SP

⇒ CP = [100 / (100 - Loss%)] × SP

We don't have to remember these formulas; they are just derived from the main formula.

E.g. Find the SP, when CP is 80 rs. and the gain is 20%.

We know the direct formula for SP when there is gain

⇒ SP = [(100 + Gain%) / 100] × CP = [(100 + 20) / 100] × 80 = 1.2 × 80 = 96 rs.

Now, let's learn a short trick or, we can say, a time saving approach to solve these questions by introducing a new term i.e. **Multiplying Factor**.

Multiplying Factors

Multiplying factors are values used to increase or decrease a quantity by a certain proportion or percentage. Let's look at this diagram to understand what multiplying factors are.

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$$(\text{Cost Price}) \times \boxed{\begin{matrix}1+\frac{\%\text{Gain}}{100}\\ 1-\frac{\%\text{Loss}}{100}\end{matrix}} \longrightarrow \text{Selling Price}$$

Multiplying Factor

So, we got,

Cost Price × Multiplying Factor = Selling Price

irrespective of profit/loss, just simple.

E.g. Find the SP, when CP is 80 rs. and the gain is 20%.

So multiplying factor would be = 1 + 20/100 = 1 + 0.2 = 1.2

So, by multiplying factor method

⇒ SP = 80 × 1.2 = 96

This is the same question which we had solved above with two methods.

Let's take some variety of questions related to profit and loss.

Questions on Profit and Loss

E.g. A shopkeeper buys 100 eggs at Rs. 1.20 per piece Unfortunately 4 eggs got spoiled during transportation. The shopkeeper sells the remaining eggs at rs. 15 a dozen. Find his profit or loss.

The cost price of one egg = 1.2 rs.

Cost Price of 100 eggs = 100 × 1.2 = 120 rs.

The selling price of one egg = 15 / 12 = 1.25 rs.

[One Dozen = 12 units]

The selling price of (100 - 4) eggs = 96 × 15 / 12 = 120rs. (Ans.)

⇒ SP = CP

So, there is neither profit nor loss incurred.

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E.g. A grocer buys 160 kg of rice at 27 per kg and mixes it with 240 kg of rice available at 32 per kg. At what rate per kg should he sell the mixture to gain 20% on the whole?

Total rice =160 + 240 = 400 kg

Total cost price of rice = 160 × 27 + 240 × 32 = 12000 rs.

The multiplying factor would be = 1 + 20 / 100 = 1 + 0.2 = 1.2

By multiplying factor

⇒ SP = CP × MF

⇒ SP = 12000 × 1.2 = 14000 rs.

E.g. A man sold two radios for 2000 each. At first, he gains 16%, and on the other he loses 16%. Find his gain or loss percent in the whole transaction.

Let's talk about the first case

⇒ SP = 2000 rs.

⇒ MF = 1 + 16/100 = 1.16

⇒ SP = MF × CP

⇒ CP = SP / MF

⇒ CP = 2000 / 1.16 = 1724 (Approx.)

Now, see the second case

⇒ SP = 2000 rs.

⇒ MF = 1 - 16/100 = 0.84

⇒ SP = MF × CP

⇒ CP = SP / MF

⇒ CP = 2000 / 0.84 = 2381 (Approx.)

So total SP = 2000 + 2000 = 4000

So total CP = 2381 + 1724 = 4104

Profit% = (SP - CP)/CP × 100

Profit% = (4000 - 4104)/4104 × 100

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Profit% = -104/4104 × 100 = 2.56% (Ans.)

NOTE: If a person sells two similar articles, one at a gain of a% and another at a loss of a%, Then the seller always incurs a loss which is given by

$$\textbf{Loss\%} = (x / 10)^2$$

E.g. A man sold two radios for 2000 each. At first, he gains 16%, and on the other he loses 16%. Find his gain or loss percent in the whole transaction

By applying formula, Loss (%) = $(x/10)^2$ = $(16 / 10)^2$ = 2.56% (Ans.)

E.g. 32% of the goods in a shop is sold at 25% profit and remaining at c% loss. If the overall loss is 2.2%, what is the value of c?

Remaining amount of goods sold at c% loss = 100 – 32 = 68%

Overall loss = -32/100 × Profit% + 68/100 × Loss%

⇒ 2.2 = -32/100 × 25 + 68/100 × c

⇒ 2.2 = -8 + 0.68c

⇒ 10.2 = 0.68c

⇒ c = 10.2/0.68 = 15

So we learned how to apply a formula. We don't have to memorize them, we just have to understand them, but sometimes short-tricks exist which are very important in competitive exams like WBP Constable Exam.

So, this is all for today. We have leant the basics of Profit and Loss with their basic formulae. In our next blog, we will discuss the the topics like Discounts, Successive Discounts and Dishonest Dealings. We will also discuss some shortcut tricks and some more formulae to bring your problem solving time from 90 seconds to 30 seconds. Till then, stay tuned!!

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