Profit and Loss: Definition, Formula, Calculation, Examples with Tips and Tricks

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Profit and loss terms are used to identify whether a sale is advantageous or not. We all are somewhat familiar with the concepts of profit and loss, when a person runs a business, he or she either faces loss or earns profits. When a person sells a product at a higher rate than the cost price, the difference between both amounts is called profit while when a person sells a product at a lower rate than the cost price, then the difference between both amounts is called loss.

What are Profit and Loss?

Profit is the difference amount when a person sells a product at a higher rate than cost price & loss is the difference amount when a person sells a product at a lower rate than cost price. Every commodity, product or item has a cost price and selling price and depending on the values of these prices, we compute the profit gained or the loss incurred for an individual product.

Profit: When a person sells a product at a higher rate than the cost price, then the difference between both amounts.

[Profit Formula](#) = Selling price – Cost price

Loss: When a person sells a product at a lower rate than the cost price, then the difference between both amounts.

Loss = Cost Price – Selling Price

Terms used in Profit and Loss

Cost Price: [Cost price](#) is the price at which a person purchases a product. For example, if Ahana purchased a book for 250 rupees, this is the cost price for that particular book. Cost price is abbreviated as C.P.

Selling Price: Selling price is the price at which a person sells a product. For example, if Ankur sold a book for 350 rupees, then this is thought to be the selling price of the book. The selling price is abbreviated as S.P.

Market Price: It is the price that is marked on an article or commodity. It is also known as list price or tag price. If there is no discount on the marked price, then the selling price is equal to the marked price.

Markup: It is the amount by which cost price is increased to reach market price. Markup = market price – cost price

Discount: The reduction offered by a merchant on a marked price is called a discount.

Successive Discount: If an article is sold at two discounts then it is said that it is sold after two successive discounts.

Dishonest Dealing: In it, a person/shopkeeper sells any product at the wrong weight and earns a profit. This can be done either by using false weight or by false reading.

1) A shopkeeper claims to sell rice at a cost price but uses a false weight of 900gm instead of 1000gm.

2) A person sells cloth to a customer but uses false reading and gives 90 meters of cloth instead of 100 meters.

Successive Selling: In it, a product is sold for more than one time from one person to another person at some profit or loss. For example – A sold a pen to B at 10% profit and then B sold the pen to C at 20% profit.

Sales Tax: When purchasing any product we have to give a certain tax to the government. This additional payment is known as sales tax. Tax is always calculated on the selling price of a product.

Profit and Loss Formulas

Profit and loss formula is employed in maths to determine the price of an entity in the market and comprehend how advantageous a business is.

If the selling price > cost price, then the difference between the S.P. and C.P. is called profit.

Similarly, if the selling price < cost price, then the difference between the C.P. and the S.P. is called loss.

Profit and Loss Terms	Meaning	Formulas
Profit or Gain	The selling price of the object > than its cost price	Profit=Selling price(SP) – Cost Price(CP)
Loss	The cost price of the object > than its selling price	Loss=Cost Price(CP) – Selling Price(SP)
Selling Price	The piece for which a commodity is sold is said to be the selling price for that particular item denoted as SP.	$SP = \left(\dfrac{100+\text{Profit}\%}{100}\right) \times CP$ OR $SP = \left(\dfrac{100-\text{Loss}\%}{100}\right) \times CP$
Cost Price	The expense at which an object is bought is termed as the cost price for that object, abbreviated as C.P.	$CP = \left(\dfrac{100}{100+\text{Profit}\%}\right) \times SP$

		OR
		$$CP = \left(\dfrac{100}{100 - \text{Loss}\%} \right) \times SP$$
Discount	To manage the competitors in the industry and promote the sale of goods, vendors offer discounts to consumers.	Discount= MP − SP(Marked Price − Selling Price)

Profit Percentage and Loss Percentage

The profit percentage (%), as well as the loss percentage (%), is obtained with the help of the below-mentioned formulas. Along with the profit percentage (%) and loss percentage (%) other percentage-related formulas are also discussed below:

Profit and Loss Terms	Formulas in Percentage
Profit percentage (%)	Profit=(SP) − (CP) $$\text{Profit percentage}\% = \left(\dfrac{\text{Profit}}{\text{Cost Price}} \right) \times 100$$
Loss percentage (%)	Loss= (CP) − (SP) $$\text{Loss percentage}\% = \left(\dfrac{\text{Loss}}{\text{Cost Price}} \right) \times 100$$
Discount (%)	$$\left(\dfrac{\text{Discount}}{\text{Marked Price}} \right) \times 100$$
Markup (%)	$$\left(\dfrac{\text{markup}}{\text{cost price}} \right) \times 100$$ Where Markup = Selling Price − Cost

For false weight, the profit percentage can be determined by the formula: $\text{Gain}\% = \dfrac{\text{Error}}{\text{TrueValue} - \text{Error}} \times 100\%$.

Learn about Time and Work

Tips and Tricks on Profit and Loss

Students can find different tips and tricks on profit and loss below for solving the questions.

Tip # 1: Candidates need to make sure that they know all the important formulas related to profit and loss which are discussed above and some are mentioned below.

- If ath part of items are sold at x% loss, then for making no profit no loss, Required gain percentage in selling the rest items = ax/(1-a)
- If two objects are sold at same selling price, one at x% profit and other at x% loss, then Loss % = $\frac{x^2}{100}$
- If the cost price of x articles is equal to selling price of y articles, then Profit percentage = {(x-y)/y} x 100

Tip # 2: If there are two successive profits or losses at x% and y% respectively, then the resultant profit or loss% = (x + y + xy)/100

- For profit, we take x and/or y as +ve value
- For loss, we take x and/or y as –ve value

Tip # 3: Profit percentage and loss percentage are always calculated on C.P. unless stated otherwise.

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Solved Examples of Profit and Loss

Example 1: Marked price of a cricket bat is Rs 1000 and it is sold at Rs 800. Find the discount percentage.

Solution: Discount = MP – SP = 1000 – 800 = Rs 200

Discount Percentage = (D/MP) × 100 = (200/1000) × 100 = 20%.

Example 2: Marked price of a product is Rs 240 and 25% discount is provided on it. Find the selling price.

Solution: Discount = SP × 25% = 240 × (25/100) = Rs 60

Selling price = MP – Discount = 240 – 60 = Rs 180.

Alternate Method: Selling Price = (100 – D %) × MP/100 = (100 – 25) × 240/100 = Rs 180.

Example 3: A T-shirt is sold after providing two successive discounts of 20%. If the marked price of a T-shirt is Rs 200 then find the selling price.

Solution: Discount 1 = 200 × 20/100 = Rs 40

Selling price after 1st discount = 200 – 40 = Rs 160 Discount 2 = 160 × 20/100 = Rs 32

Selling price after 2nd discount = 160 – 32 = Rs 128

Alternate Method: Effective discount = 20 + 20 – (20 × 20)/100 = 36% Discount = 200 × 36/100 = Rs 72

Selling price = 200 − 72 = Rs 128.

Example 4: A man gains 30% by selling an article for a certain price. If he sells it at double the current selling price, then what will be the profit percentage?

Solution: Let, the cost price be Rs. x.

∴ Selling price = Rs. 1.3x

Now, new SP = Rs. 2.6x

∴ Profit % = [(2.6x− x)] × 100 = 160%

Example 5: If A bought an article at Rs.200 and sold it to B at 20% profit. Again B sold the article at 10% profit to C. Find the amount paid by C.

Solution: Price paid by B = 200 + (200/100 × 20) = 200 + 40 = Rs. 240

∴ Price paid by C = 240 + (240/100 × 10) = 240 + 24 = Rs. 264

Alternate Method: Net profit = 20 + 10 + 20 × 10/100 = 32%

Hence, amount paid by C = 200 + (200/100 × 32) = Rs. 264.

Example 6: A man sold 2 bicycles at the same selling price. One at 20% loss and other at 20% profit. Find overall profit and loss percentage.

Solution: Let the selling price be 300x

Then, CP for 1st bicycle = 250x Then, CP of 2nd bicycle = 375x

Hence, Net CP = 625x and net SP = 600x

∴ Net loss % = (25x/625x) × 100 = 4%

Example 7: If the cost price of 5 oranges is equal to the selling price of 4 oranges, then find a profit percentage.

Solution: Let cost price of an orange is Rs. 4 and selling price of an orange is Rs. 5 (we can assume it as it satisfies the given condition of the cost price of 5 oranges is equal to selling price of 4 oranges)

Hence, profit percentage = [(5 − 4)/4] × 100 = 25%

Example 8: 10 pens costs Rs. 100 each. If half of the pens are sold at 10% loss then find at what price remaining each pen should be sold for making no loss and no profit.

Solution: Total cost price of 10 pens = 10 × 100 = Rs. 1000

Selling price of 1 pen = 100 − (100 × 10%) = Rs. 90 Hence, selling price of 5 pens = Rs. 450

Now, selling price of remaining 5 pens = 1000 − 450 = Rs. 550 Hence, selling price of 1 pen = Rs. 110

∴ Profit % = [(110 − 100)/100] = 10%

Example 9: Ram purchased a bicycle for Rs. 5954. He had paid a VAT of 14.5%. Find the list price of the bicycle.

Solution: Let the list price be Rs. a. VAT = 14.5%

So, a × (114.5/100) = 5954

⇒ a = (5954 × 100)/114.5

⇒ a = 5200

∴ The list price of the bicycle was Rs. 5200.

Example 10: Rajesh bought accessories worth Rs. 150. Out of the amount spent for buying accessories, Rs. 10 was spent on sales tax due to taxable purchases. If the tax rate was 10%, calculate the price of the tax-free items.

Solution: Total Price = 150 Tax paid = Rs. 10 Tax = 10%

Let the taxable purchases = Rs x

⇒ 10% of x = 10

⇒ 0.1x = 10

∴ x = 100

∴ Tax free items = 150 − 100 − 10 = Rs.40

We hope you found this article regarding Profit and Loss was informative and helpful, and please do not hesitate to contact us for any doubts or queries regarding the same. You can also download the Testbook App which is absolutely free and start preparing for any government competitive examination by taking the mock tests before the examination to boost your preparation.

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Ratio and Proportion	Percentage Increase & Decrease

FAQs of Profit and Loss

Q.1 What is profit and loss?
Ans.1 Profit is amount when a person sells a product at a higher rate than cost price & loss is amount when a person sells a product at a lower rate than cost price.

Q.2 What is the formula of profit and loss?

Ans.2 The formula for the profit and loss is:

Profit percentage = (Profit /Cost Price) x 100

Loss percentage = (Loss / Cost price) x 100

Q.3 What is the SP formula?

Ans.3 S.P. is the abbreviation for selling price. It is basically the price at which an article is traded. If the vendor gains profit then S.P. = C.P. + Profit.

Q.4 What do MP and CP stand for?

Ans.4 Mp stands for market price and CP stands for cost price.

Q.5 What is the cost price formula?
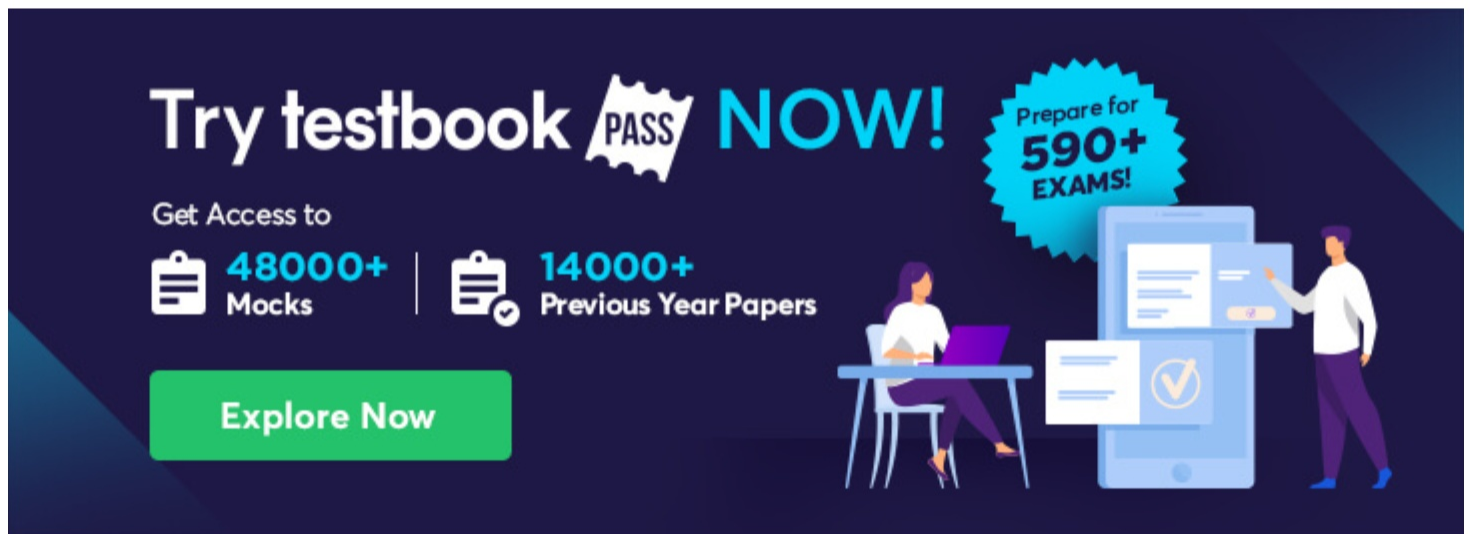
Ans.5 The amount spent for a product or entity to buy it is called a cost price.

Cost price formula = Selling Price + Loss

Q.6 What is the discount formula?

Ans.6 The formula to estimate the discount in terms of SP and MP is:

Discount = Marked Price – Selling Price