**CBSE Class 8 Maths Notes Chapter 7:** CBSE Class 8 Maths Chapter 7 Comparing Quantities focuses on understanding and solving problems related to ratios, percentages, discounts, profit and loss, and simple and compound interest.

This chapter helps students grasp the practical applications of these concepts in everyday situations, such as calculating discounts during shopping, understanding profit margins in business, or determining interest on savings. The notes for this chapter simplify complex topics, providing clear explanations and examples to enhance students' understanding and problem-solving skills.

# CBSE Class 8 Maths Notes Chapter 7 Comparing Quantities Overview

These notes are prepared by subject experts of Physics Wallah for CBSE Class 8 Maths Chapter 7 Comparing Quantities. The overview provides a clear and concise explanation of key concepts like ratios, percentages, profit and loss, and interest calculations.

This chapter covers various methods of comparing quantities, including percentages, profit and loss, discounts, simple and compound interest, and more. Understanding these concepts helps students apply mathematical reasoning to everyday transactions, enhancing their analytical skills. These notes are designed to simplify complex ideas and make learning more accessible for students.

# CBSE Class 8 Maths Notes Chapter 7 Comparing Quantities PDF

You can easily access the detailed notes for CBSE Class 8 Maths Chapter 7 Comparing Quantities by downloading the PDF from the link provided below. These notes will help you grasp important concepts like ratios, percentages, profit and loss, and simple and compound interest making your study sessions more effective and efficient.

**CBSE Class 8 Maths Notes Chapter 7 Comparing Quantities PDF**

# CBSE Class 8 Maths Notes Chapter 7 Comparing Quantities

Here are the detailed notes for CBSE Class 8 Maths Chapter 7 Comparing Quantities. These notes cover essential topics such as fractions, ratios, percentages, profit and loss, discount calculations, simple and compound interest, and more. Each concept is explained in a straightforward manner to help students grasp the fundamentals effectively. These notes are

designed to help in thorough revision and provide a clear understanding of how to compare quantities in various mathematical contexts.

### Introduction to Fraction, Ratios and Percentages

In the chapter "Comparing Quantities," students will be introduced to key concepts such as fractions, ratios, and percentages. You'll learn how to calculate discounts when the discount percentage is provided, as well as understand essential financial concepts like cost price, sales tax, and GST (Goods and Services Tax). The chapter covers the calculation of compound interest, providing a solid foundation for comparing various quantities in real-life scenarios.

### Fractions, Ratios and Percentages

Fractions, ratios, and percentages are fundamental mathematical concepts. A fraction represents a part of a whole and consists of a numerator and a denominator, showing the division of two quantities. For example, fractions like 1/4, 1/5, and 2/3 represent different parts of a whole. These concepts are essential for understanding how quantities relate to each other and are used extensively in comparing and analyzing different values.

A ratio is a way to compare one value to another, showing the relationship between two different quantities. For instance, a ratio of 3:5 compares the first quantity to the second, indicating that for every 3 units of the first quantity, there are 5 units of the second.

A percentage, on the other hand, expresses a part of a whole as a fraction of 100. For example, 10% of 100 is equal to 10, meaning that 10 is 10% of the total 100 units. Percentages are commonly used to represent proportions and are helpful in making comparisons and understanding data.

## Finding the Increase or Decrease in Percent

When calculating the increase or decrease in percentage for a given situation, we adjust the original number by the percentage change.

Finding new number, when there is **increase** in percentage.
New number = original number + (increase in percentage × number)

**Example : The Cost of a mobile phone  is Rs 15,000. Find the new price if there is a increaseof 5%**
New price = original price + 5% of original price

New price = 15,000 + (5/100 × 15,000)
New price = 15,000+750 = 15,750
Here Rs 750 is **increase** in the price.

The new number can be found out using,
New number = original number × percentage increase

Eg : New price = 15,000×105÷100=15,000×1.05=15,750

Finding new number, when there is decrease in percentage.
New number = original number – (decrease in percentage × number)
Also, New number = original number × percentage decrease

Eg : The Cost of a mobile phone is Rs 15,000. Find the new price if there is a decrease of 5%
New price = 15,000×95÷100=15,000×0.95=14,250

## Finding Discounts

**Discounts** refer to the reduction in the price of an item from its marked price. Discounts can be given either as a fixed amount or as a percentage of the marked price.

A **reduction** (decrease) on the **marked price** is known as **discount.**
If the discount is given in numbers then it is calculated by
**Discount = Marked price – Sale price**

If the discount is given in percentage then it is calculated by:
**Discount = Discount % of Marked price**

## Finding Discounts

If the **discount** is given in numbers.
Example : Marked price of a shirt is Rs 535. Its selling price is Rs 495. Find the discount.
Solution : Discount = Marked price – Sale price
Discount = Rs 535 – Rs 495 = Rs 40

If the **discount** is given in percentage.
Example : A toy priced Rs 500 is available at a discount of 5%. Find the discount.
Solution : Discount = 5% of 500 = 5/100 × 500
Discount = Rs 25

## Estimation of Amounts (In Percentages)

Estimating **amounts** when there is a **discount** or **hike** on the marked price.

**Example** : Anil bought a  pair of shoes priced Rs 650, at a discount of 10%. Find the billing amount.
**Solution** : Billing amount = Marked price – discount
Billing amount = Rs 650−(10/100)×650
Billing amount = Rs 650−Rs 65=Rs 585

**Example** : Shilpa bought a new mobile for Rs 15,000. She has to pay 2% as delivery charges. Find the billing amount.
**Solution** : Billing amount = Marked price + Hike
Billing amount = Rs 15,000+(2/100)× 15000
Billing amount = Rs 15,000+Rs 300=Rs 15,300

## Prices Related to Buying and Selling

When dealing with buying and selling, it's important to understand how to calculate profit and loss, as well as their respective percentages. Here is a overview of these calculations:

Profit = Selling price – Cost price
Profit % = (Profit/Cost Price) × 100
Loss = Cost price – Selling price
Loss % = Loss/Cost Price × 100

## Finding Prices / Charges Related to Buying and Selling

**Example** : A shopkeeper sold a T.V priced Rs 12,000 at Rs 13,500. Find his profit percentage.
**Profit** = Selling price – Cost price
Profit = Rs 13,500−Rs 12,000=Rs 1,500
Profit % = (Profit/Cost price)×100
Profit % = (1500/12000) ×100=12.5%

**Example** : Amit sold his laptop, priced Rs 20,000 at Rs 18,000. Find his loss percentage.
**Loss** = Cost price – Selling price
Loss = Rs 20,000−Rs 18,000=Rs 2000
Loss % = (Loss/Cost Price ×100)
Loss% = (2000/20000) ×100 = 10%

## Sales Tax and Value Added Tax

### Sales Tax / VAT

Sales tax or Value Added Tax (VAT) is a government-imposed tax on the sale of goods and services. It is added to the price of items and reflects as an additional charge on the bill.

Finding Sales Tax / VAT

Sales tax or VAT = Tax % of Selling price

Billing Amount = Selling price + VAT

**Example** : Megha bought a wrist watch for Rs 1,200 and VAT is charged at 8%. Calculate the VAT and billing amount.

VAT = Tax % of selling price
VAT = 8% of 1,200=8/100 ×1200=Rs 96
Billing amount = S.P + VAT = Rs 1,200 + Rs 96 = Rs 1296.

## Simple and Compound Interest

### Simple Interest

Simple Interest is a straightforward method of calculating the extra money charged on a loan or earned on a deposit. The principal amount remains constant throughout the specified time period.

**Key Concepts:**

- **Principal (P):** The initial amount of money either borrowed or deposited.
- **Time (T):** The duration, usually in years, for which the money is borrowed or deposited.
- **Rate of Interest (R):** The percentage of the principal charged as interest annually.

**Formula for Simple Interest:** Simple interest = (P.T.R)/100

## Compound Interest

Compound Interest differs from Simple Interest in that the interest is calculated on the initial principal, which includes all the accumulated interest from previous periods. This method allows for the interest to "compound" over time, leading to a higher amount compared to Simple Interest.

Eg : Find CI on Rs 10,000 for 2 years at an interest rate of 5%.

Ans : Interest for the 1st year
For 1st year, P = 10,000, T = 1 year, R = 5%
$I_1$ = PTR/100
= (10000.1.5)/100
= Rs.500

A=P+$I_1$=10,000+500=10,500

Interest for the 2nd year
For 2nd year, P = 10,500, T = 1 year, R = 5%
$I_2$ = PTR/100
= (10500.1.5)/100
= Rs 525

Cost Price, C.I.= $I_1$+$I_2$=Rs 500+Rs 525=Rs 1025

## Deducing a Formula for Compound Interest

**Formula for Cost Price**

Calculation of **compound interest** can be generalized.
Let P1 be the sum on which the interest is compounded annually at the rate of R
Then the interest for the 1st year,
$I_1$ = PTR/100
= $P_1$.R/100
$A_1=P_1+I_1=P_1+P_1$.R/100
$A_1=P_1(1+R/100)$ = P2

For 2nd year,
$P2=P_1(1+R/100)$
T=1 year and R=R%
$I_2$ = ($P_2$.1.R)/100
= $P_2$.R/100
$I_2=P_1(1+R/100) \times R/100$
$I_2=P_1R/100(1+R/100)$
$A_2=P_2+I_2$
$A_2=P_1(1+R/100)+P1R/100(1+R/100)$
Taking $P_1(1+R/100)$ as common, we get;
$A_2=P_1(1+R/100)(1+R/100)$
$A_2=P_1(1+R/100)^2$
Continuing this way, the amount at the end of n years will be,

$$A_n=P(1+R/100)^n$$

Where, P is the principal amount, R is the rate of interest and n is the number of years.
We get the formula for the amount to be paid at the end of n years.
Compound Interest can be calculated using the formula,

$$CI=A-P$$

## Rate Compounded Annually and Half Yearly

If interest is **compounded annually,**
time span, n = 1 year, here the principal amount **varies yearly**.
Principal amount (A=P+I1) for first year will serve as the principal for the second year.

If interest is compounded half – yearly,
time span, n = 6 months, here the principal amount varies half – yearly.
Principal amount (A=P+I1) for first 6 months will be the principal for the next 6 months.

## Finding CI When Rate Compounded Annually or Semi – Annually

When compound interest is compounded annually,

$A = P(1+R/100)^n$
$CI = A – P$

Where, P is the principal amount, R is the rate of interest and n is the number of years.

When compound interest is compounded half yearly, the **interest rate will be half of the annual interest rate** and the **time period will be doubled**.

$A = P(1+R/200)^{2n}$
$CI = A – P$

Where, P is the principal amount, R is the rate of interest and n is the number of years.

## Application of Compound Interest

**Application of compound interest** are :

**Calculating the Growth Rate of Population:**

- Compound interest is used to determine how a population grows or decreases over time. By applying the compound interest formula, demographers can predict future population sizes, considering factors such as birth rates, death rates, and migration.

**Calculating the Change in the Price of an Item:**

- Compound interest is also applied to track changes in the price of goods or services over time. This can include inflation, where the price of items increases, or deflation, where prices decrease. The compound interest formula helps in estimating the future cost based on current prices and the rate of change.

**Example** : If the population of a town increases 2% annually and the present population is 3,26,40,000, find its population after 2 years.

**Solution.** P = 3,26,40,000  n = 2 years, R = 2%

Therefore,  Population after 2 years

$A=P(1+R/100)^n$

$A=32640000(1+2/100)^2$

$A=32640000\times(51/50)^2$

$A=32640000\times(51/50)\times(51/50)$

$A=13056\times51\times51$

$\Rightarrow A=33958656$

$\therefore$ The population after 2 years is 3,39,58,656.

**Example :** A motorcycle is bought at Rs 1,60,000. Its value depreciates at the rate of 10% per annum. Find its value after 2 years.

**Solution.** P = 1,60,000  n = 2 years, R = 10%

$A=P(1-R/100)^n$

$A=160000\times(1-10/100)^2$

$A=160000\times9/10\times91/10$

$A=129600$

$\therefore$ The value of the motorcycle after 2 years is Rs 1,29,600.

# Benefits of CBSE Class 8 Maths Notes Chapter 7 Comparing Quantities

- **Clear Conceptual Understanding**: These notes simplify complex topics like ratios, percentages, profit and loss, and compound interest, helping students grasp the fundamental concepts more easily.
- **Quick Revision**: The notes are concise and well-organized, making them an excellent tool for quick revision before exams.
- **Problem-Solving Skills**: By providing solved examples and explanations, these notes enhance students' problem-solving abilities, preparing them for various types of questions.
- **Exam-Oriented Preparation**: The notes are designed according to the CBSE curriculum, ensuring that students focus on the key topics and types of questions likely to appear in exams.