A Hundredth Part

i. Definition and Explanation

Imagine you have a whole object, like a large chocolate bar or a square piece of paper. If you divide that whole object into 100 equal pieces, one of those tiny pieces is called "one hundredth" of the whole. A hundredth part is a way of representing a small fraction of a whole. It is a fundamental concept that connects fractions, decimals, and percentages.

There are three main ways to write "one hundredth":

As a Fraction: $\frac{1}{100}$

- The denominator (100) tells us the whole is divided into 100 equal parts.
- The numerator (1) tells us we are considering just one of those parts.

As a Decimal: 0.01

- In the decimal system, the second place to the right of the decimal point is the hundredths place. So, 0.01 literally means one hundredth.

As a Percentage: 1%

- The word "percent" comes from the Latin "per centum," which means "per hundred." So, 1% means 1 for every 100, or simply one hundredth.

In short: $\frac{1}{100} = 0.01 = 1\%$

ii. Key Points and Important Terms

Hundredth: One part out of one hundred equal parts.

Denominator: The bottom number in a fraction that shows the total number of equal parts (in this case, 100).

Numerator: The top number in a fraction that shows how many parts we have.

Decimal Point: The dot that separates the whole number part from the fractional part of a number.

Place Value: The value of a digit based on its position. The second digit after the decimal point is in the hundredths place.

Percent (%): A symbol used to represent a hundredth part. It means "out of 100."

The word "of" means "multiply": When you see a phrase like "Find $\frac{1}{100}$ of 500," it means you need to calculate $\frac{1}{100} \times 500$.

iii. Detailed Examples with Solutions

Understanding how to calculate a hundredth part of a number is crucial.

Example 1: Finding a hundredth of a whole number

Question: What is one hundredth of 400?

Solution: This means we need to find 11001001 of 400.

Method 1: Using Fractions

- 1100 × 400 = 4001001001 × 400 = 100400
- Divide 400 by 100.
- 400 ÷ 100 = 4400 ÷ 100 = 4

Method 2: Using Decimals

- We know 11001001 is equal to 0.01.
- 0.01 × 400 = 40.01 × 400 = 4

Shortcut: Finding one hundredth of a number is the same as dividing the number by 100.

- 400 ÷ 100 = 4400 ÷ 100 = 4

Answer: One hundredth of 400 is 4.

Example 2: Real-world application with money

Question: A video game costs ₹2500. You have a coupon for a 1% discount. How much money do you save?

Solution: You need to find 1% of ₹2500. This is the same as finding one hundredth of 2500.
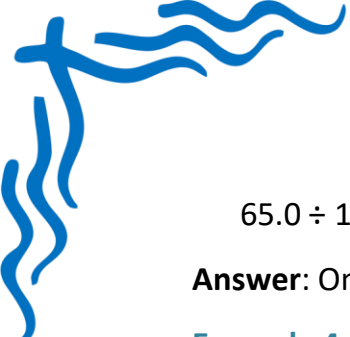
Using the "Divide by 100" Shortcut:

2500 ÷ 100 = 252500 ÷ 100 = 25

Answer: You save ₹25.

Example 3: Finding a hundredth of a smaller number

Question: What is 11001001 of 65?

Solution: We need to divide 65 by 100.

Dividing by 100: When you divide a whole number by 100, you move the decimal point two places to the left. (Remember, 65 is the same as 65.0).

65.0 ÷ 100 = 0.6565.0 ÷ 100 = 0.65

Answer: One hundredth of 65 is 0.65.

Example 4: Representing multiple hundredths

Question: Express 17 hundredths as a fraction, a decimal, and a percentage.

Solution:

Fraction: 17 hundredths means 17 parts out of 100. So, the fraction is 1710010017.

Decimal: The hundredths place is the second digit after the decimal point. So, 17 hundredths is written as 0.17.

Percentage: "Percent" means "out of 100." So, 17 out of 100 is 17%.

iv. Summary of Main Concepts

- A hundredth part is one piece out of 100 equal pieces.

- It can be written in three equivalent ways: 11001001 (fraction), 0.01 (decimal), and 1% (percentage).

- The second digit to the right of the decimal point is the hundredths place.

- To find one hundredth (or 1%) of any number, you simply divide that number by 100.

- Understanding hundredths is key to working with money, discounts, statistics, and many other real-world math problems.