

## Percentage Formula

The percentage formula is a mathematical expression used to calculate the proportion of a value relative to a whole. Percentages are widely used in various fields, including finance, statistics, and everyday life, to express how much one quantity is in relation to another.

### What is a Percentage?

A percentage represents a part of a whole expressed in hundredths. It is denoted by the symbol "%." For example, 25% means 25 out of 100 or 25 per hundred.

### Basic Percentage Formula

The basic formula for calculating a percentage is:

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```
Percentage = (Part / Whole) × 100
```

- **Part:** The portion of the whole that you want to express as a percentage.
- **Whole:** The total or overall amount from which the part is taken.

### Examples of Using the Percentage Formula

1. **Finding the Percentage of a Number:** To find what percentage a number (Part) is of another number (Whole):
  - If you have 30 out of 200, the calculation would be:

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```
Percentage = (30 / 200) × 100 = 15%
```

- 2.
3. **Calculating the Part from a Percentage:** To find the actual number (Part) when you know the percentage and the total (Whole):
  - If you want to find 20% of 150, the calculation would be:

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```
Part = (Percentage / 100) × Whole
```

```
Part = (20 / 100) × 150 = 30
```

- 4.
5. **Finding the Whole from a Percentage:** To determine the total (Whole) when you know the Part and the Percentage:
  - If you know that 40 is 25% of a number, the calculation would be:

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$$\text{Whole} = \text{Part} / (\text{Percentage} / 100)$$

$$\text{Whole} = 40 / (25 / 100) = 160$$

6.

### Common Applications of Percentages

- **Finance:** Used to calculate interest rates, discounts, and tax amounts.
- **Statistics:** Used to express data as parts of a whole, like survey results and demographic data.
- **Education:** Used to determine grades, score percentages, and performance metrics.

### Conclusion

Understanding how to use the percentage formula is essential for various calculations in everyday life and professional settings. It provides a simple yet effective way to express proportions, make comparisons, and analyze data in a meaningful way.

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