

# The Ultimate Percentage Cheat Sheet

By PDFZora & David Miller

## 1. The Famous 10% Rule (Base-10 System)

Because our global number system is Base-10, you can find 10% of ANY number globally by moving the decimal point one place to the left.

Example: 10% of 45.00 is 4.50. 10% of 80 is 8.

## 2. Calculating Tips / Service Charge Mentally

15% Service: Find 10% (move decimal), then add half of that number.

Example: Bill is 60. 10% is 6. Half of 6 is 3. Tip = 6 + 3 = 9.

20% Service: Find 10% (move decimal) and double it.

Example: Bill is 80. 10% is 8. Double it. Tip = 16.

## 3. Common Retail Discounts (Fractions)

25% Off: 25% is exactly  $\frac{1}{4}$ . Divide the original price by 4.

Example:  $100 / 4 = 25$  discount. Final price = 75.

50% Off: 50% is exactly  $\frac{1}{2}$ . Divide the original price by 2.

## 4. Markup / Percentage Increase

Formula:  $(\text{New Amount} - \text{Old Amount}) / \text{Old Amount} * 100$

Shortcut: If an item goes from 40 to 60, the difference is 20. Since 20 is exactly half (50%) of the original 40, it is a 50% increase.

## 5. Reverse Percentages (Finding Original Amount)

If you paid 84 for an item that was 30% off, you paid 70% of the original price.

Calculation:  $84 / 0.70 = 120$  original price.

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## Official Academic Reference

These proportional reasoning shortcuts are officially recognized and taught under the mathematical literacy frameworks established by the National Council of Teachers of Mathematics (NCTM) and the OECD Programme for International Student Assessment (PISA).