



Mastering Percentages: Your Aptitude Advantage

Welcome to a foundational topic that unlocks success in aptitude exams and everyday life: Percentages! This presentation will guide you through the essentials, practical applications, and clever shortcuts to master this crucial concept.

What Exactly is a Percentage?

At its core, a percentage simply means “**per hundred**” . It's a way to express a part of a whole as a fraction of 100, denoted by the % symbol.

Percentage is one of the most important topics in aptitude because it appears in almost every exam and also in daily life, such as discounts, marks, profit, and interest.

Let's look at an example:

50% is the same as **50/100**, which simplifies to **1/2**, or **0.5** in decimal form.



Why Percentages are Indispensable

Understanding percentages isn't just for exams; it's a vital life skill. It forms the bedrock for numerous other concepts and calculations.



Aptitude Exams

A consistent feature in nearly all competitive tests and assessments.



Foundation for Key Topics

- Profit & Loss
- Simple & Compound Interest
- Data Interpretation



Real-World Applications

- Discounts & Sales
- Tax Calculations
- Academic Results & Scores

If we understand percentages clearly, many other aptitude topics become very easy.

The Fundamental Percentage Formula

Calculating a percentage is straightforward. It's simply the value you're interested in, divided by the total value, multiplied by 100.

$$\text{Percentage} = \frac{\text{Value}}{\text{Total}} \times 100$$



Let's put it into practice:

Imagine you scored 45 marks out of a possible 60 on a test.

$$\frac{45}{60} \times 100 = 75\%$$

Your score is 75%!

Mastering Percentage Conversions

Percentages can be easily converted into fractions and decimals, and vice-versa. This flexibility is incredibly useful in problem-solving.



Percentage → Fraction

Simply divide by 100 and simplify.

$$25\% = 25/100 = 1/4$$

Percentage → Decimal

Divide by 100.

$$25\% = 0.25$$

Fraction → Percentage

Multiply by 100.

$$3/5 = (3/5) \times 100 = 60\%$$

Quick Conversion Tip:

Memorising common values can save you time:

- $50\% = 1/2$
- $25\% = 1/4$
- $75\% = 3/4$
- $100\% = 1/1$

Understanding Percentage Increase & Decrease

Percentages are frequently used to express changes in value over time. Whether it's growth or reduction, the concept remains similar.

Percentage Increase Formula:

$$\frac{\text{Increase}}{\text{Original Value}} \times 100$$

Example: If a product's price increased from £100 to £120.

Increase = £20

$$\text{Percentage Increase} = (\frac{\text{£20}}{\text{£100}}) \times 100 = 20\%$$

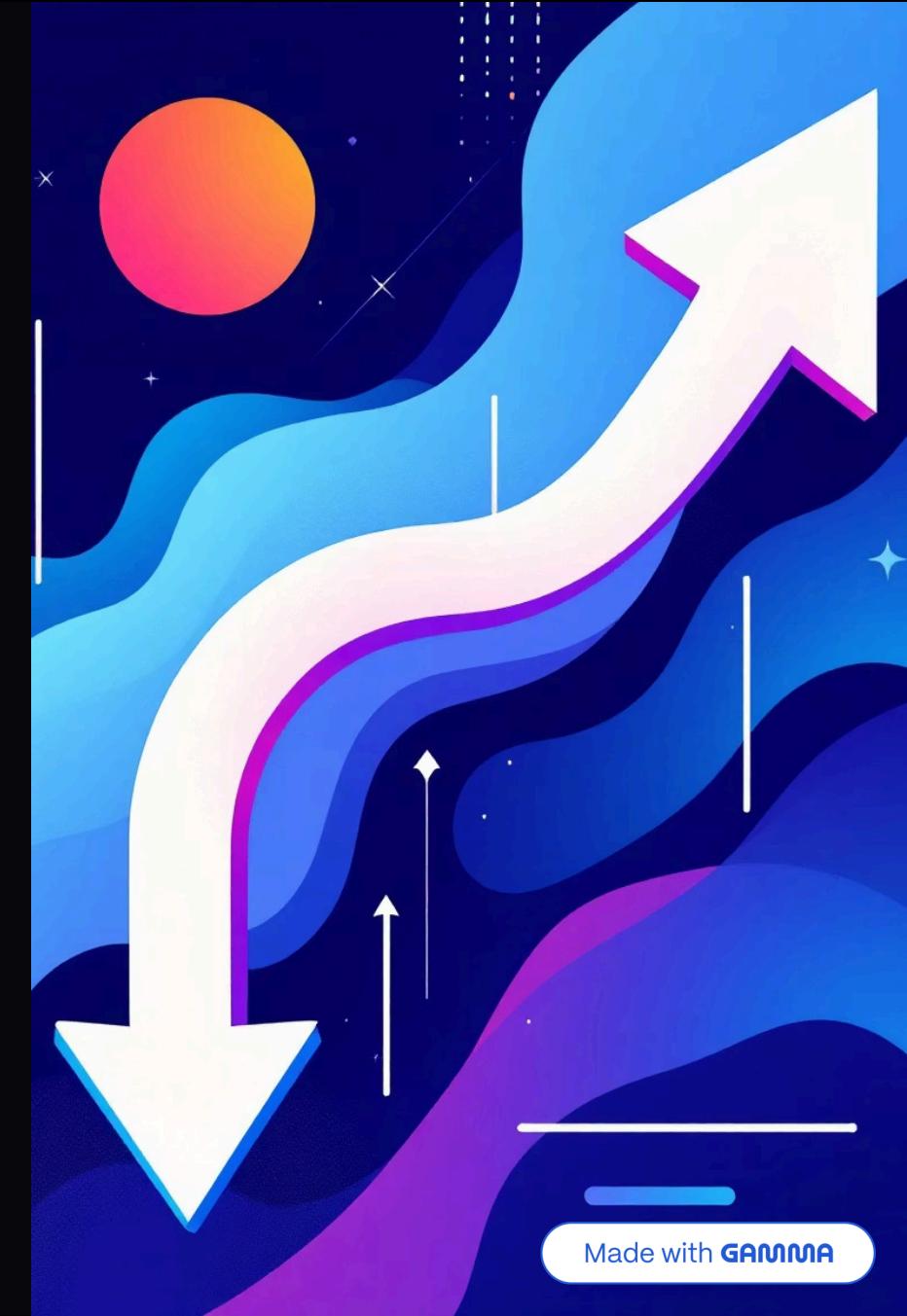
Percentage Decrease:

The same formula applies, but you'll be calculating the reduction. The 'Increase' in the formula becomes the 'Decrease'.

Example: If a value dropped from 50 to 40.

Decrease = 10

$$\text{Percentage Decrease} = (\frac{10}{50}) \times 100 = 20\%$$



Percentage Change: The Shortcut Method

For quick calculations involving percentage increases or decreases, a simple multiplication factor can save significant time.

Increase by x%

Multiply the original value by $(1 + x/100)$

Example: Increase 20% on 500 = $500 \times (1 + 20/100) = 500 \times 1.2 = 600$

Decrease by x%

Multiply the original value by $(1 - x/100)$

Example: Decrease 15% on 400 = $400 \times (1 - 15/100) = 400 \times 0.85 = 340$

This method is incredibly efficient for problems involving multiple percentage changes.

Key Aptitude Tricks for Percentages

Unlock faster problem-solving with these clever percentage properties and common pitfalls.



The Commutative Property

x% of y = y% of x

Example: 20% of 50 = $(0.20 * 50) = 10$

And 50% of 20 = $(0.50 * 20) = 10$

This can simplify calculations immensely!



Successive Changes Are Not Additive

A common mistake is to assume a +20% change and a -20% change cancel each other out. They don't!

Example: Start with £100.

Increase by 20% = £120.

Decrease £120 by 20% = $\text{£120} - (\text{£120} * 0.20) = \text{£120} - \text{£24} = \text{£96}$.

The net change is a **£4 loss**, not 0%.



Steering Clear of Common Percentage Mistakes

Even seasoned students can trip up on percentage problems. Be aware of these frequent errors to avoid them.

Directly Adding Percentages

As we saw with successive changes, you can't just add or subtract percentages from different bases.

Ignoring the Base Value

Percentages are always "of" something. Forgetting the original value (the base) is a critical error.

Confusing Increase & Decrease

Ensure you're applying the correct operation and understanding whether the value is going up or down.

Most mistakes happen because we ignore the base value when performing percentage calculations.

Exam-Level Challenge: Net Percentage Change

Let's apply our knowledge to a classic aptitude question.

Question:

A number is first increased by 10% and then the new number is decreased by 10%. What is the overall net change in the number?

Take a moment to consider your answer before revealing the solution!



Solution:

Let the original number be **100**.

- Increased by 10%: $100 \times (1 + 10/100) = 100 \times 1.1 = 110$
- Decreased by 10%: $110 \times (1 - 10/100) = 110 \times 0.9 = 99$

The final number is 99, starting from 100.

$$\text{Net change} = 99 - 100 = -1$$

Therefore, the net change is a **1% decrease (loss)**.

This highlights why successive percentage changes are not simply additive.