KAGZI · ORIGINAL STUDY SERIES

STUDY BOOK 07 · ENGLISH EDITION

Mathematics and Reasoning

Arithmetic, Algebra and Logical Ability

Initial English Edition · 7 November 2026

Initial edition · Chapter-wise expansion in progress

For UPPSC / UPSSSC, UPSC, SSC and Railway examination preparation.
This is an initial, chapter-wise edition. It does not claim to cover the complete syllabus. Check changing administrative and current-affairs facts against official sources before an examination.

About this book

In mathematics, it is important not only to remember formulas but also to understand when each formula applies. Solve questions step by step and pay attention to units.

Chapter 01 · Percentage: Basic Concepts

Learning objective: *Understand basic concepts, identify key terms and answer factual as well as conceptual examination questions.*

1. Meaning of Percentage

Percentage means per hundred. To calculate x per cent of a quantity, multiply the quantity by x/100. Example: 25% of 240 = 240 × 25/100 = 60.

2. Converting Percentages into Fractions and Decimals

20% = 20/100 = 1/5 = 0.20. Also, 12.5% = 1/8. Remembering common percentage-to-fraction conversions can make calculations faster.

3. Increase and Decrease

After an increase of r%, new value = original value × (100+r)/100. After a decrease of r%, new value = original value × (100-r)/100. Example: after a 10% increase, 500 becomes 550.

4. Reasoning Strategy

For a number series, first check differences, then differences of differences, multiplication or division, squares, or alternating patterns. For blood relations, directions, ordering and classification, a small diagram can help organise the given information.

Quick Revision

- x% = x/100
- Value after r% increase = original × (100+r)/100
- Value after r% decrease = original × (100-r)/100

Practice and Self-Assessment

What is 25% of 240?

Answer and explanation: 60, because 240 × 25/100 = 60.

Convert 20% into a fraction in simplest form.

Answer and explanation: 1/5.

What is the value of 500 after a 10% increase?

Answer and explanation: 550.

Sources and further study

This is an original KAGZI explanation translated and adapted from the corresponding Hindi study edition. For verification, consult official NCERT textbooks, relevant Government of India and state-government departments, and examination commission notifications. Administrative and current-affairs facts may change and should be checked against current official sources. No unauthorised coaching book or copyrighted PDF has been reproduced. Official PYQ labels are used only when the exact examination year and official question-paper source have been verified.

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