

Mathematics

Original practice in 13 topic units, with explanations, worked examples and answer guidance. Use alongside the prescribed texts and syllabus.



13 practice units

78 tasks with answer guidance

Name / नाम: _____

Original selected-topic practice. Use alongside school lessons and the prescribed textbook. The contents define this book's scope.

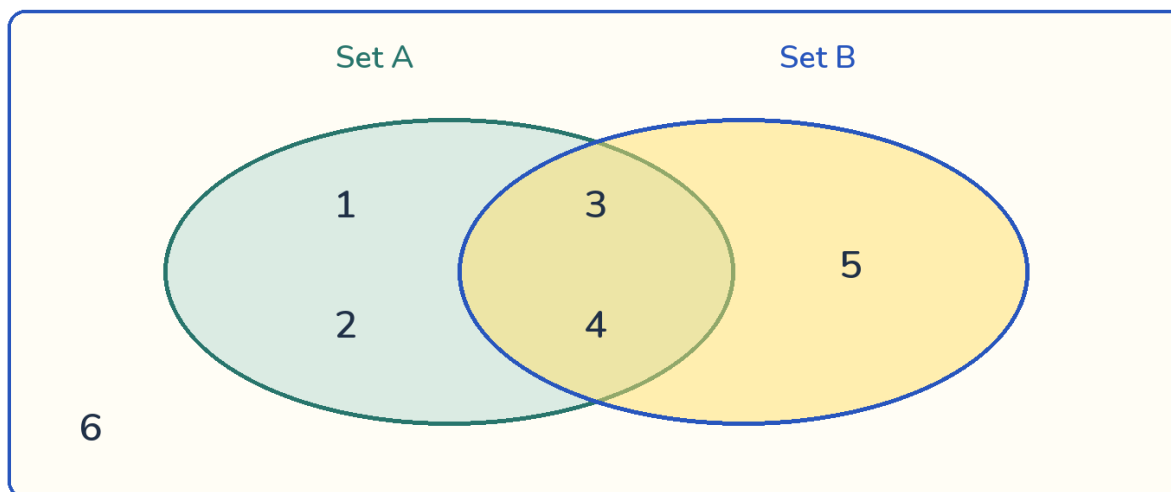
CBSE course 041 · 2026–27 · Selected practice, not a complete syllabus or official examination paper.

UNIT 01 · PRACTISE · 1–3

Sets, relations and domains

Every element has one place

Universal set $U = \{1, 2, 3, 4, 5, 6\}$



A only: 1, 2 Overlap: 3, 4 B only: 5 Outside both: 6

$A = \{1, 2, 3, 4\}$; $B = \{3, 4, 5\}$. Elements in the overlap belong to both sets. Count them once in the union.

1. If $A = \{1, 3, 5\}$ and $B = \{3, 4\}$, write $A \cup B$, $A \cap B$ and $A - B$. [2 marks]

2. In 40 students, 23 study music, 18 study theatre and 7 study both. How many study at least one? How many neither? [3 marks]

Formative-only practical union/intersection counting under the official annex.

3. $A = \{a, b\}$, $B = \{1, 2, 3\}$. Write $A \times B$ and its cardinality. [2 marks]

UNIT 01 · PRACTISE · 4–6

Sets, relations and domains

4. Does $R = \{(1,2), (2,3), (3,3)\}$ define a function from $\{1,2,3\}$ to $\{2,3,4\}$? State its range. [2 marks]

5. Find the real domain of $f(x) = \sqrt{(x-2)/(x-5)}$. [2 marks]

6. For $f(x) = x^2$ on domain $\{-2, -1, 0, 1, 2\}$ and codomain $\{0, 1, 2, 3, 4\}$, find the range. [2 marks]

Explain one answer. Choose a question to revisit after a few days.

UNIT 01 · ANSWER GUIDANCE

Sets, relations and domains

1. Union $\{1,3,4,5\}$; intersection $\{3\}$; difference $\{1,5\}$.
2. At least one = $23 + 18 - 7 = 34$. Neither = $40 - 34 = 6$.
3. $\{(a,1),(a,2),(a,3),(b,1),(b,2),(b,3)\}$; cardinality = $2 \times 3 = 6$.
4. Yes: every domain element has exactly one image. Range = $\{2,3\}$; the unused codomain element 4 does not prevent it being a function.
5. Require $x \geq 2$ and $x \neq 5$. Domain = $[2,5) \cup (5,\infty)$.
6. The outputs are 4,1,0,1,4. Distinct outputs give range $\{0,1,4\}$.

Teaching note

Write the universal set before taking a complement and the input restrictions before simplifying.

Assessment scope: Main-list set/function concepts mixed with formative-only practical union/intersection counting.

Curriculum reference: https://cbseacademic.nic.in/web_material/CurriculumMain27/SecPart2/Maths_SecP2_2026-27.pdf

Selected practice; outcomes are publisher-defined. School practicals, projects and prescribed readings require separate preparation.