QUICK DRILL · CBSE CLASS 11

Sets

Mathematics · Chapter 1 · 15 MCQs · 20 minutes · PYQ-tagged with time budgets

DATE	TOTAL MARKS	DURATION	MARKING	TARGET
_____	15	20 min	+1 / 0	⩾ 12/15

OBJECTIVES
Reinforce the four core topics of Sets via 15 PYQ-derived MCQs. Identify weak sub-topics via concept-node IDs (see answer key). Build per-question time budget habit.

INSTRUCTIONS
Attempt all 15. Time budget shown per Q (use it as pacing guide). Mark answers (A/B/C/D) in the margin. Answer key + explanations on the last page. **Don't peek — score yourself honestly.**

SECTION · QUICK DRILL

Q 1–15 · 20 MIN

Q1. Which of the following collections is a well-defined SET?
(A) The collection of tall boys in a class
(B) The collection of good novels
(C) The collection of vowels in the English alphabet
(D) The collection of difficult chapters in Maths
PYQ 2022 · CBSE SQP · 1m · 30s

Q2. The set {x : x is an integer and $x^2 = 9$} in roster form is:
(A) {3}
(B) {9}
(C) {–3, 3}
(D) {–9, 9}
PYQ 2022 · School Annual · 1m · 45s

Q3. Which of these sets is the EMPTY set?
(A) {0}
(B) {x : x is a natural number, x < 1}
(C) {∅}
(D) {x : x ∈ R, $x^2 = 4$}
PYQ 2023 · CBSE SQP · 1m · 45s

Q4. The sets {1, 2, 3} and {a, b, c} are:
(A) Equal
(B) Equivalent but not equal
(C) Both equal and equivalent
(D) Neither equal nor equivalent
PYQ 2021 · School Annual · 1m · 30s

Q5. If A = {1, 2, 3}, which statement is CORRECT?
(A) 2 ⊂ A
(B) {2} ∈ A
(C) {2} ⊂ A
(D) 1 ⊆ A
PYQ 2023 · CBSE SQP · 1m · 30s

Q6. The number of subsets of a set with 5 elements is:
(A) 10
(B) 25
(C) 32
(D) 31
PYQ 2022 · School Annual · 1m · 30s

Q7. The number of PROPER subsets of A = {a, b, c, d} is:
(A) 16
(B) 15
(C) 8
(D) 14
PYQ 2023 · Periodic Test · 1m · 30s

Q8. The interval [2, 7) written in set-builder form is:
(A) {x ∈ R : 2 < x < 7}
(B) {x ∈ R : 2 ⩽ x ⩽ 7}
(C) {x ∈ R : 2 ⩽ x < 7}
(D) {x ∈ R : 2 < x ⩽ 7}
PYQ 2024 · School Annual · 1m · 30s

Q9. If A = {1, 2, 3, 4} and B = {3, 4, 5, 6}, then A ∩ B is:
(A) {1, 2, 5, 6}
(B) {3, 4}
(C) {1, 2, 3, 4, 5, 6}
(D) { }
PYQ 2021 · School Annual · 1m · 30s

Q10. If A = {1, 2, 3, 4} and B = {3, 4, 5, 6}, then A − B is:

(A) {5, 6} **(B)** {3, 4}
(C) {1, 2} **(D)** {1, 2, 5, 6}

PYQ 2022 · CBSE SQP · 1m · 30s

Q11. If U = {1,⋯,10} and A = {2, 4, 6, 8, 10}, then A' is:

(A) {1, 3, 5, 7, 9} **(B)** {2, 4, 6, 8, 10}
(C) { } **(D)** {1,⋯,10}

PYQ 2021 · School Annual · 1m · 30s

Q12. De Morgan's law states that (A ∪ B)' equals:

(A) A' ∪ B' **(B)** A' ∩ B'
(C) A ∩ B **(D)** A' − B'

PYQ 2024 · CBSE SQP · 1m · 30s

Q13. If n(A) = 20, n(B) = 28 and n(A ∩ B) = 8, then n(A ∪ B) is:

(A) 56 **(B)** 48
(C) 40 **(D)** 36

PYQ 2022 · School Annual · 1m · 30s

Q14. In a class of 50, 30 like maths, 25 like science and 15 like both. How many like NEITHER?

(A) 10 **(B)** 5
(C) 15 **(D)** 40

PYQ 2023 · CBSE SQP · 1m · 45s

Q15. Which statement is ALWAYS true for any set A?

(A) A is a proper subset of A **(B)** ∅ ⊆ A
(C) A ∈ A **(D)** {∅} = ∅

PYQ 2024 · School Annual · 1m · 30s

ANSWER KEY & EXPLANATIONS

Q 1–15 · MARK YOUR SCORE

Q1. Answer: C

A set must be well-defined — membership decidable without opinion. 'Vowels {a,e,i,o,u}' is unambiguous; 'tall', 'good', 'difficult' are subjective, so those collections are not sets.

Q2. Answer: C

$x^2 = 9 \Rightarrow x = \pm 3$, and both are integers. So the set is {−3, 3}. (Not {9}: that confuses x with x^2.)

Q3. Answer: B

No natural number is less than 1, so that set is ∅. {0} and {∅} each have one element; {x : x^2=4} = {−2,2}. Common trap: {0} is NOT empty.

Q4. Answer: B

Same number of elements (3 each) ⇒ equivalent; different members ⇒ not equal. Equivalent does not imply equal.

Q5. Answer: C

{2} is a one-element SET, so {2} ⊂ A (subset). Use ∈ for an element (2 ∈ A) and ⊂ for a subset. '2 ⊂ A' and '1 ⊆ A' wrongly put a number on the subset side.

Q6. Answer: C

Number of subsets = 2^n = 2^5 = 32. (31 would be the number of proper subsets, 2^5 − 1.)

Q7. Answer: B

Total subsets = 2^4 = 16; proper subsets exclude A itself, so 2^4 − 1 = 15.

Q8. Answer: C

[means the left endpoint 2 is INCLUDED (⩽... actually 2 ⩽ x),) means 7 is EXCLUDED (x < 7). So {x ∈ R : 2 ⩽ x < 7}.

Q9. Answer: B

Intersection = elements common to BOTH = {3, 4}.

Q10. Answer: C

A − B = elements in A but not in B = {1, 2}. (B − A would be {5, 6} — difference is not commutative.)

Q11. Answer: A

A' = U − A = the odd numbers {1, 3, 5, 7, 9}.

Q12. Answer: B

(A∪B)' = A'∩B' — complement flips union to intersection. Choosing A'∪B' is the classic error.

Q13. Answer: C

$n(A \cup B) = n(A) + n(B) - n(A \cap B) = 20 + 28 - 8 = 40$.

Q14. Answer: A

$n(M \cup S) = 30 + 25 - 15 = 40$ like at least one. Neither $= 50 - 40 = 10$.

Q15. Answer: B

The empty set is a subset of every set (vacuously). A is NOT a proper subset of itself; $A \in A$ is generally false; and $\{\varnothing\}$ (one element) is not the empty set.