



EXAM-DAY · 90-MIN REVISION CARD

Real Numbers

*Print this · Fold it · Carry to the exam-hall gate · Revise once · Then walk in.***FORMULAS & KEY RESULTS**

FTA: every composite uniquely = product of primes (apart from order)

HCF = product of SMALLEST powers of COMMON primes

LCM = product of GREATEST powers of ALL primes appearing

$HCF(a,b) \times LCM(a,b) = a \times b$ (only for 2 numbers!)

p/q terminates $\Leftrightarrow q$ (lowest form) = $2^n \cdot 5^m$

Termination place count = $\max(n, m)$

\sqrt{p} irrational for every prime p — prove by contradiction (Theorem 1.3)

If prime $p \mid a^2$, then $p \mid a$ (Theorem 1.3 — load-bearing for irrationality proofs)

TOP 5 PYQ PATTERNS**1 Prove \sqrt{p} is irrational ($p \in \{2, 3, 5, 7\}$)***3 marks · 95% of years*

Use the 3-step template above. Co-prime \rightarrow Theorem 1.3 \rightarrow contradiction.

2 Find HCF and LCM by prime factorisation + verify HCF·LCM = product*3 marks · 75% of years*

Prime factorise both. HCF = smallest common powers. LCM = greatest of all powers. Multiply HCF \times LCM. Multiply $a \times b$. Check equal.

3 LCM word problem (bells / tankers / cyclists)*3 marks · 70% of years*

Spot that the question wants a 'minimum common time / multiple' \rightarrow LCM. Don't be fooled by 'largest' in some phrasings.

4 Will p/q have a terminating decimal? After how many places?*1 mark · 90% of years*

Reduce to lowest form first. Factorise denominator. Only 2s and 5s \rightarrow terminates. Place count = max of two exponents.

5 Prove $a + b\sqrt{p}$ is irrational, given \sqrt{p} is irrational*2 marks · 60% of years*

Assume rational \rightarrow isolate \sqrt{p} \rightarrow it would be rational \rightarrow contradiction with GIVEN.

90-MIN REVISION FLOW**0–15 min**

Skim slides 2–7 of notes deck — focus on FTA + Theorem 1.3 statements

15–30 min

Write the 'Prove \sqrt{p} irrational' template from memory. Compare to topper template card.

30–45 min

Solve drill Qs 1–5 (timed: 12 min) + check answers

45–60 min

Solve drill Qs 6–15 (timed: 12 min) + check

60–75 min

Scan the misconception red-boxes — confirm none of them describes you

75–90 min

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Confidence, not anxiety. You've practised this all year. Trust your steps. Don't change strategy on exam morning. Helpline: +91 70330 05444 · [readyforboards.com](https://www.readyforboards.com)