MATHS WITHOUT GUESSWORK · BOARD BOOSTER

Real Numbers

LOCK THE SURE MARKS.
STRETCH FOR THE TOP.
PRACTISE THE BOARD WAY.

A board-exam practice companion for **CBSE Class 10 Mathematics**
Syllabus session 2026–27 · Standard (041)

🛡️ Secure Track | 🚀 Stretch Track | ~55 questions + 3 mini-mocks

Built around three ideas — nothing more

FTA	HCF·LCM	√p
Prime factorisation	From the factorisation	Proving irrationality

Original questions and solutions. Answers kept separate. Not a substitute for the NCERT textbook or your teacher.

Liked this? The full Real Numbers Board Booster is ₹99 →

Real Numbers in the board paper

Know exactly how many marks are really at stake here — so you spend your effort where the paper pays.

◆ UNDERSTAND THE OFFICIAL NUMBER Real Numbers sits inside **Unit I — Number Systems, worth 6 marks** of the 80-mark paper. CBSE publishes weightage **per unit, not per chapter**, and Real Numbers is the only chapter in this unit — so 6 marks is a fair planning figure, not a guarantee of question placement.

Where those marks usually fall (PYQ trend — based on past papers, not official)

Form it takes	Typical marks	What it tests
1–2 MCQ / Assertion-Reason	1–2	Prime factorisation, HCF/LCM facts, "is it rational?"
A VSA or SA	2–3	HCF & LCM by factorisation, or an irrationality proof
Sometimes a case study (Section E)	4	Real-life LCM/HCF (lights, bells, packing, scheduling)

⚠ COMMON TRAP STUDYING DELETED TOPICS **Two things are OUT of the 2026–27 syllabus and will not be asked:**

- **Euclid's Division Lemma / Algorithm** — gone. Do HCF by *prime factorisation* only.
- **Decimal expansion of rationals** (the "is $\frac{13}{3125}$ terminating without dividing?" type) — also gone.

Don't waste a single minute on either. This booster contains neither.

Q4 If $\text{HCF}(a, b) = 12$, $\text{LCM}(a, b) = 180$ and $a = 36$, then b =

A. 45 **B.** 60

C. 72 **D.** 15

1 MARK PART-GUIDED

Q5 Two numbers have HCF 18 and LCM 760. Such a pair:

A. exists uniquely **B.** exists, two pairs

C. cannot exist **D.** exists only if both even

1 MARK INDEPENDENT ★

Q6 If a natural number ends in the digit 0, then it must have both of these as prime factors:

A. 2 and 3 **B.** 3 and 5

C. 2 and 5 **D.** 5 and 7

1 MARK PART-GUIDED ★

Q7 The number $7 \times 11 \times 13 + 13$ is:

A. prime **B.** composite

C. neither **D.** an irrational number

1 MARK INDEPENDENT ★

Q8 The product of a non-zero rational number and an irrational number is always:

A. rational **B.** irrational

C. an integer **D.** zero

1 MARK PART-GUIDED

Q9 Which of the following is an irrational number?

A. $\sqrt{25}$ **B.** $\sqrt{\frac{16}{9}}$

C. $\sqrt{7}$ **D.** $0.\bar{3}$ (0.333...)

1 MARK GUIDED

Q10 In the prime factorisation of 144, the exponent of 2 is:

A. 2 **B.** 3

C. 4 **D.** 5

1 MARK GUIDED

Q11 The HCF of the smallest composite number and the smallest prime number is:

A. 1 **B.** 2

C. 4 **D.** 6

1 MARK PART-GUIDED

Q12 The LCM of $2^3 \times 3$ and 2×3^2 is:

A. $2 \times 3 = 6$ **B.** $2^3 \times 3^2 = 72$

C. $2^4 \times 3^3$ **D.** $2^3 \times 3 = 24$

1 MARK GUIDED

Q13 If p is a prime number, then HCF(p, p^2) is:

A. 1 **B.** p

C. p^2 **D.** p^3

1 MARK PART-GUIDED

Q14 If two positive integers are co-prime, their HCF is:

A. their product **B.** 1

C. the larger one **D.** 0

1 MARK GUIDED

Real Numbers · Board Booster — Secure Track

1 2 3 4 5 6 Secure

Very Short Answer (2-mark) set

Ten 2-mark questions. Each wants a factorisation and a clear final line — no long essays.

V1 Find the HCF and LCM of 26 and 91, and verify that HCF × LCM = product of the two numbers.

2 MARKS · GUIDED ★

V2 Explain why $3 \times 5 \times 7 + 7$ is a composite number.

2 MARKS · PART-GUIDED ★

V3 Find the largest number that divides both 70 and 125, leaving remainders 5 and 8 respectively.

2 MARKS · INDEPENDENT ★

V4 Write 3825 as a product of its prime factors.

2 MARKS · GUIDED

V5 The HCF of two numbers is 9 and their LCM is 360. If one number is 45, find the other.

2 MARKS · PART-GUIDED ★

V6 Find the smallest number that is exactly divisible by 15, 20 and 24.

2 MARKS · PART-GUIDED

V7 Given that $\sqrt{2}$ is irrational, prove that $5 - 3\sqrt{2}$ is irrational.

2 MARKS · INDEPENDENT ★

V8 Find the HCF of 336 and 54 by prime factorisation.

2 MARKS · GUIDED

Case studies (4-mark, single-chapter)

➤ **CHOOSE THE METHOD DECODE FIRST, THEN IT'S ORDINARY HCF/LCM** Each case gives a real situation, then 3 sub-parts (1 + 1 + 2 marks). **Step 1: read and decide — is this "same-size groups / largest" (HCF) or "together again / smallest" (LCM)?** Underline the clue word, then solve.

C1 **Diwali lights.** On a festival string, a red light blinks every 20 seconds, a green every 24 seconds and a blue every 30 seconds. They all blink together at the moment the string is switched on.

- **(i)** Is this an HCF or an LCM situation? (1)
- **(ii)** Write 20, 24 and 30 as products of primes. (1)
- **(iii)** After how many seconds will all three next blink together, and how many times will the red light have blinked by then? (2)

4 MARKS PART-GUIDED ★

C2 **Charity gift packs.** A volunteer has 48 notebooks, 60 pens and 72 erasers. She wants to make identical gift packs using all the items, with every pack containing the same number of each item.

- **(i)** Should she use HCF or LCM? (1)
- **(ii)** What is the greatest number of identical packs she can make? (1)
- **(iii)** How many notebooks, pens and erasers will each pack contain? (2)

4 MARKS INDEPENDENT ★

Answer Key

Kept at the back on purpose — so a parent needn't teach. Model questions get full step-marked solutions; drills get the key steps, the answer, and the likely slip.

Section 6 — MCQ & Assertion-Reason

Q	Ans	Why
Q1	**A**	156 = 2 × 78 = 2 × 2 × 39 = $2^2 \times 3 \times 13$. (C is wrong — 39 isn't prime.)
Q2	**B**	96 = $2^5 \times 3$, 404 = $2^2 \times 101$. Common = $2^2 = 4$.
Q3	**C**	a × b = HCF × LCM = 9 × 360 = 3240.
Q4	**B**	b = (HCF × LCM)/a = (12 × 180)/36 = 60.
Q5	**C**	HCF must divide LCM. 18 ∤ 760 (760 = 18 × 42 + 4), so no such pair exists.
Q6	**C**	Ending in 0 means divisible by 10 = 2 × 5, so both 2 and 5 must be factors.
Q7	**B**	7×11×13 + 13 = 13(77 + 1) = 13 × 78 — a product of two numbers > 1, so composite.
Q8	**B**	A non-zero rational times an irrational is always irrational.
Q9	**C**	√25 = 5, √(16/9) = 4/3, $0.\bar{3}$ = 1/3 — all rational. √7 is irrational.
Q10	**C**	144 = $2^4 \times 3^2$, so the exponent of 2 is 4.
Q11	**B**	Smallest composite = 4, smallest prime = 2. HCF(4, 2) = 2.
Q12	**B**	LCM = greatest powers = $2^3 \times 3^2 = 72$.
Q13	**B**	Common factor of p and p^2 is p (smallest power).
Q14	**B**	Co-prime means HCF = 1 (by definition).

MATHS WITHOUT GUESSWORK

Liked this? Get the full Real Numbers Board Booster for ₹99

You have just read 8 sample pages. The full Booster is 40 pages with 55 questions.

What is in the full Booster

- **MCQ and Assertion-Reason.** 20 one-mark questions
- **Very Short Answer.** 10 two-mark questions
- **Short Answer.** 8 three-mark questions
- **Long Answer.** 6 five-mark questions
- **Case studies.** 5 four-mark source-based cases
- **HOTS and trickiest variations.** 6 questions
- **Timed mini-mocks and Answer Key.** 3 single-chapter mini-mocks; every question has its answer, kept at the back

Buy the full Booster — ₹99

or visit www.mathswithoutguesswork.com/board-boosters/real-numbers

Instant PDF download after payment · Secure payment by Razorpay · If it doesn't reach you, we'll resend it.

Still learning the chapter? Get the **Real Numbers concept ebook + Board Booster for ₹149**: bought separately they cost ₹198, so you save ₹49.

Preparing for the whole paper? The **Board Exam Kit** has all 14 Board Boosters and the Board Final Pack for ₹799: bought one by one they cost ₹1,785, so you save ₹986.