



Laying the foundation of lifelong success

CHAPTER 1

Real Number

(Previous Years' Questions)

3 – Markers

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1. Prove that $\sqrt{3}$ is an irrational number. (2026, 2025)

 2. Prove that $\sqrt{5}$ is an irrational number. (2026, 2025, 2024, 2023)

 3. Prove that $\sqrt{2}$ is an irrational number. (2026)

 4. The dimensions of a window are 156 cm x 216 cm. Arjun wants to put grill on the window creating complete squares of maximum size. Determine the side length of the square and hence find the number of squares formed. (2026)

 5. Ranjita, Neha and Salma start weaving sweaters at the same time for the children of an orphan home. They need 15, 18 and 20 days, respectively, to complete a sweater. After how many days will all of them start making a new sweater again? By that time how many sweaters will have been completed by them? (Comptt., 2025)

 6. Prove that $\frac{1}{\sqrt{5}}$ is an irrational number. (2025)

7. Three sets of Physics, Chemistry and Mathematics books have to be stacked in such a way that all the books are stored subject-wise and the height of each stack is the same. The number of Physics books is 144, the number of Chemistry books is 180 and the number of Mathematics books is 192. Assuming that the books are of same thickness, determine the number of stacks of Physics, Chemistry and Mathematics books. **(2025)**
8. Prove that $\left(5\sqrt{3} + \frac{2}{3}\right)$ is an irrational number, given that $\sqrt{3}$ is an irrational number. **(2025)**
9. Prove that $\left(4\sqrt{2} + \frac{5}{3}\right)$ is an irrational number, given that $\sqrt{2}$ is an irrational number. **(2025)**
10. (a) Prove that $\sqrt{2}$ is an irrational number.
- OR**
- (b) Let x and y be two distinct prime numbers and $p = x^2y^3$, $q = xy^4$, $r = x^5y^2$. Find the HCF and LCM of p , q and r . Further check if
$$\text{HCF}(p, q, r) \times \text{LCM}(p, q, r) = p \times q \times r$$
 or not. **(2025)**

11. (a) Prove that $\sqrt{3}$ is an irrational number.

OR

(b) State true or false for each of the following statements and justify in each case:

(i) $2 \times 3 \times 5 \times 7 + 7$ is a composite number.

(ii) $2 \times 3 \times 5 \times 7 + 1$ is a composite number.

(2025)

12. (a) Prove that $\sqrt{5}$ is an irrational number.

OR

(b) Let p, q and r be three distinct prime numbers.

Check whether $p \cdot q \cdot r + q$ is a composite number or not.

Further, give an example for 3 distinct primes p, q, r such that

(i) $p \cdot q \cdot r + 1$ is a composite number.

(ii) $p \cdot q \cdot r + 1$ is a prime number.

(2025)

13. A school has invited 42 Mathematics teachers, 56 Physics teachers and 70 Chemistry teachers to attend a Science workshop. Find the minimum number of tables required, if the same number of teachers are to sit at a table and each table is occupied by teachers of the same subject.

(Comptt., 2024)

14. In a teachers' workshop, the number of teachers teaching French, Hindi and English are 48, 80 and 144 respectively. Find the minimum number of rooms required if in each room the same number of teachers are seated and all of them are of the same subject.

(2024)

15. Prove that $\frac{2 - \sqrt{3}}{5}$ is an irrational number, given that $\sqrt{3}$ is an irrational number.

(2024)

16. (a) Prove that $\sqrt{3}$ is an irrational number.

OR

- (b) Prove that $(\sqrt{2} + \sqrt{3})^2$ is an irrational number, given that $\sqrt{6}$ is an irrational number.

(2024)

17. (a) Find by prime factorisation the LCM of the numbers 18180 and 7575. Also, find the HCF of the two numbers.

OR

- (b) Three bells ring at intervals of 6, 12 and 18 minutes. If all the three bells rang at 6 a.m., when will they ring together again?

(2023)

18. (a) Prove that $\sqrt{3}$ is an irrational number.

OR

- (b) The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds respectively. If they change simultaneously at 7 a.m., at what time will they change together next? **(2023)**
19. (A) Find the HCF and LCM of 26, 65 and 117, using prime factorisation.
- OR**
- (B) Prove that $\sqrt{2}$ is an irrational number. **(2023)**

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