
UDAAN
2026
REAL NUMBERS
MATHS
LECTURE-1
BY-RITIK SIR

Topic to be covered

1. Factors & Multiples
2. Prime and Composite no.s
3. HCF & LCM using prime factorisation.


WORK HARD
DREAM BIG
NEVER GIVE UP

DOUBTS

Doubt 1. Difference between Standard Maths and Basic Maths?

DOUBTS

Notes

Doubt 2. Konsi Books?

(1) NCERT

(2) $\boxed{\text{Maths handwritten notes.}}$

(3) $\boxed{\text{Question bank}}$

DOUBTS

Doubt 3. Aapki strategy to score 100/100 in UDAAN batch?

1. Blindly follow my lectures + $\boxed{\text{DPP}}$
2. Revision → $\boxed{\text{Notes + Question bank}}$
3. Last main Sample papers

Factors

12 → 1, 2, 3, 4, 6, 12

15 → 1, 3, 5, 15

common factors = 1, 3

$\boxed{H}$ighest $\boxed{c}$ommon $\boxed{f}$actor = 3

$\boxed{HCF(12,15)=3}$

Multiples

12 = 12, 24, 36, 48, 60 ......

15 = 15, 30, 45, 60, 75 ......

Common multiple = 60, ...

$\boxed{L}$east $\boxed{c}$ommon $\boxed{m}$ultiple = 60

$\boxed{LCM(12,15)=60}$

Meaning of Finding $\boxed{\text{HCF (a, b)}}$

Sabse bada number jo ‘a’ or ‘b’ dono ko divide karde.

Meaning of Finding LCM (a, b, c)

Sabse chota number jo ‘a’, ‘b’, ‘c’ teeno se divide ho jaiye.

Prime Factorisation

2	180
2	90
5	45
3	9
3	3
	1

$180 = 2 \times 2 \times 5 \times 3 \times 3$

$$\boxed{180 = 2^2 \times 5^1 \times 3^2}$$

2	240
2	120
2	60
2	30
5	15
3	3
	1

$$\boxed{240 = 2^4 \times 5^1 \times 3^1}$$

9	18
2	2
	1

$18 = 9 \times 2$

9 → 1, 3, 9 — composite no.

QUESTION

$5^0 = 1$

#Q. Find the HCF and LCM of 90 and 144 by the prime factorization method.

$90 = 2^1 \times 5^1 \times 3^2$

$144 = 2^4 \times 3^2 \times 5^0$

$$\begin{array}{r|l} 2 & 90 \\ \hline 5 & 45 \\ 3 & 9 \\ 3 & 3 \\ & 1 \end{array} \qquad \begin{array}{r|l} 2 & 144 \\ \hline 2 & 72 \\ 2 & 36 \\ 2 & 18 \\ 3 & 9 \\ 3 & 3 \\ & 1 \end{array}$$

HCF $(90, 144) = 18$

LCM $(90, 144) = 720$

$\text{HCF} = 2^1 \times 5^0 \times 3^2$

$= \boxed{18}$

$\text{LCM} = 2^4 \times 3^2 \times 5^1$

$= 16 \times 9 \times 5$

$= \boxed{720}$

QUESTION

#Q. Find the $\boxed{\text{HCF and LCM}}$ of $\boxed{144, 180 \text{ and } 192}$ by the prime factorization method.

$144 = 2^4 \times 3^2 \times 5^0$

$180 = 2^2 \times 3^2 \times 5^1$

$192 = 2^6 \times 3^1 \times 5^0$

$HCF = 2^2 \times 3^1 \times 5^0$

$= 12$

$LCM = 2^6 \times 3^2 \times 5^1$

$= 2880$

2	144
2	72
2	36
2	18
3	9
3	3
	1

2	180
2	90
5	45
3	9
3	3
	1

2	192
2	96
2	48
2	24
2	12
2	6
3	3
	1

(A) 12, 280

(B) 12, 2880

(C) 14, 2880

(D) NOTA

QUESTION

#Q. Write the smallest number which is divisible by both 306 and 657.

CBSE 2019

$LCM(306, 657) = 22338$ Ans

3	306
3	102
2	34
17	17
	1

3	657
3	219
73	73
	1

$306 = 3^2 \times 2^1 \times 17^1 \times 73^0$

$657 = 3^2 \times 73^1 \times 2^0 \times 17^0$

$LCM = 3^2 \times 2^1 \times 73^1 \times 17^1$

$= 9 \times 2 \times 73 \times 17 =$

QUESTION

#GPh

Ghar par karo

#Q. Find the prime factorization the LCM of the numbers 18180 and 7575. Also, find the HCF of the two numbers.

CBSE 2023

Prime Numbers

only two factors.

$5 \to 1, 5$

$2 \to 1, 2$

$13 \to 1, 13$

$19 \to 1, 19$

Composite Numbers

more than '2' factors

$12 \to 1, 2, 3, 4, 6, 12$

Q 21 → composite no.

$21 \to 1, 3, 7, 21$

Q 1

$1 \to 1$

neither prime nor composite

QUESTION CBSE $\{-\infty \ldots -2, -1, 0, 1, 2, 3, 4, 5 \ldots \infty\}$

#Q. If two positive integers a and b are expressible in the form $a = pq^2$ and $b = p^3q$. p, q being prime numbers, then LCM(a, b) is:

$a = pq^2 = p^1 \times q^2$
$b = p^3q = p^3 \times q^1$

$HCF(a, b) = p^1 \times q^1 = pq$

$LCM(a, b) = p^3 \times q^2 = p^3q^2$

(A) pq

(B) p^3q^3

(C) p^3q^2

(D) p^2q^2

QUESTION

#Q. Let x and y be two distinct prime numbers and $p = x^2 y^3$, $q = xy^4$, $r = x^5 y^2$. Find the HCF and LCM of p, q and r. [redacted]

a|q-a|g

CBSE 2025

$p = x^2 \times y^3$
$q = x^1 \times y^4$
$r = x^5 \times y^2$

$\text{HCF}(p, q, r) = x^1 y^2 = xy^2$

$\text{LCM}(p, q, r) = x^5 y^4$

QUESTION

#Q. If $x = ab^3$ and $y = a^3b$, where a and b are prime numbers, then [HCF (x, y) – LCM(x, y)] is equal to:

CBSE 2025

$\text{HCF}(x, y) = \boxed{ab}$

$\text{LCM}(x, y) = \boxed{a^3b^3}$

$= \boxed{ab - a^3b^3}$

$= \boxed{ab(1 - a^2b^2)}$

$= ab[(1)^2 - (ab)^2]$

$x^2 - y^2 = (x - y)(x + y)$

$= \boxed{ab[1 - ab][1 + ab]}$

(A) $1 - a^3 b^3$ ✗

(B) $ab (1 - ab)$ ✗

(C) $ab - a^4 b^4$ ✗

(D) $ab (1 - ab) (1 + ab)$

QUESTION

#GPk

#Q. If $a = 2^2 \times 3^x$, $b = 2^2 \times 3 \times 5$, $c = 2^2 \times 3 \times 7$, and LCM (a, b, c) = 3780, then x =

(A) 0

(B) 1

(C) 2

(D) 3

2 Ch → 10 hrs

1 Ch

5 lectures → 10 hrs

20 hrs → 2 chapters

1 Mahina

Thank You


UDAAN
2026
REAL NUMBERS
MATHS
LECTURE-2
BY-RITIK SIR

Topics

to be covered

#GPU

A. Questions on HCF, LCM, Prime numbers, Composite numbers

B. Relation between HCF and LCM of two numbers

C. Coprime numbers

Next class

QUESTION

#Q. Find the HCF and LCM of 144, 180 and 192 by the prime factorization method.

$144 = 2^4 \times 3^2 \times 5^0$

$180 = 2^2 \times 3^2 \times 5^1$

$192 = 2^6 \times 3^1 \times 5^0$

$HCF = 2^2 \times 3^1 \times 5^0$

$= 12$

$LCM = 2^6 \times 3^2 \times 5^1$

$= 2880$

2	144
2	72
2	36
2	18
3	9
3	3
	1

2	180
2	90
5	45
3	9
3	3
	1

2	192
2	96
2	48
2	24
2	12
2	6
3	3
	1

(A) 12, 280

(B) 12, 2880

(C) 14, 2880

(D) NOTA

Prime Numbers

only two factors.

5 → 1, 5

2 → 1, 2

13 → 1, 13

19 → 1, 19

Composite Numbers

more than '2' factors

12 → 1, 2, 3, 4, 6, 12

Q 21 → composite no.

21 → 1, 3, 7, 21

Q 1

1 → 1

neither prime nor composite

#GPK

#Q. If $a = 2^2 \times 3^x$, $b = 2^2 \times 3 \times 5$, $c = 2^2 \times 3 \times 7$, and LCM (a, b, c) = 3780, then x =

(A) 0

(B) 1

(C) 2

(D) 3

$a = 2^2 \times 3^x \times 5^0 \times 7^0$

$b = 2^2 \times 3^1 \times 5^1 \times 7^0$

$c = 2^2 \times 3^1 \times 7^1 \times 5^0$

LCM = $2^2 \times 3^x \times 5^1 \times 7^1$

$3780 = 2^2 \times 3^x \times 5^1 \times 7^1$

$\boxed{2^2 \times 3^3 \times 5^1 \times 7^1 = 2^2 \times 3^x \times 5^1 \times 7^1}$

3

LCM (a, b, c) = 3780

2	3780
2	1890
5	945
3	189
3	63
3	21
7	7
	1

#Q. If the HCF of 85 and 153 is expressible in the form 85n – 153 then the value of n is

(A) 3

(B) 2

(C) 4

(D) 1

$$\begin{array}{c|c} 5 & 85 \\ \hline 17 & 17 \\ & 1 \end{array} \qquad \begin{array}{c|c} 3 & 153 \\ \hline 3 & 51 \\ 17 & 17 \\ & 1 \end{array}$$

$85 = 5^1 \times 17^1 \times 3^0$

$153 = 3^2 \times 17^1 \times 5^0$

$HCF = 3^0 \times 17^1 \times 5^0$

$= 1 \times 17 \times 1 = 17$

$HCF = 85n - 153$

$17 = 85n - 153$

$17 + 153 = 85n$

$170 = 85n$

$\frac{170}{85} = n$

$2 = n$

#Q. The HCF of smallest prime number and the smallest composite number is:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 . . .

Smallest prime no.

composite no.

(A) 2

(B) 4

(C) 6

(D) 8

$$2 \,|\, \underline{2} \qquad 2 \,|\, \underline{4}$$
$$\quad 1 \qquad\quad 2 \,|\, \underline{2}$$
$$\qquad\qquad\quad 1$$

$$HCF(2, 4) = 2^1$$

$$2 = 2^1$$

$$4 = 2^2$$

#Q. The LCM of the smallest two digit composite number and the smallest composite number is:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 ......

Smallest two digit composite no.

A) 12

B) 20

C) 4

D) 44

$LCM(4,10) = 2^2 \times 5^1 = 20$

$4 = 2^2 \times 5^0$

$10 = 2^1 \times 5^1$

Jo divide hojaye.

#Q. The least number that is divisible by all the numbers form 1 to 10 (both inclusive)

$1 = 1^1$
$2 = 2^1$
$3 = 3^1$
$4 = 2^2$
$5 = 5^1$
$6 = 2^1 \times 3^1$

$LCM = 2^3 \times 3^2 \times 5^1 \times 7^1$

2520

2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
2	1, 1, 3, 2, 5, 3, 7, 4, 9, 5
2	1, 1, 3, 1, 5, 3, 7, 2, 9, 5
3	1, 1, 3, 1, 5, 3, 7, 1, 9, 5
3	1, 1, 1, 1, 5, 1, 7, 1, 3, 5
5	1, 1, 1, 1, 5, 1, 7, 1, 1, 5
7	1, 1, 1, 1, 1, 1, 7, 1, 1, 1
	1, 1, 1, 1, 1, 1, 1, 1, 1, 1

A 10

B 100

C 504

D 2520

$$HCF = 5^0 \times 7^0 = 1$$

$$5 = 5^1 \times 7^0$$

$$LCM = 5^1 \times 7^1 = 35$$

$$7 = 7^1 \times 5^0$$

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a, b

Prime

$$HCF(a, b) = 1$$

$$LCM(a, b) = a \times b$$

alg-alg.

#Q. If p and q are two distinct prime numbers, then their HCF is

A 2

B 0

C Either 1 or 2

D 1

#Q. If p and q are two distinct numbers, then their LCM (p, q) is

A. 1

B. p

C. q

D. pq

#Q. Let n be a natural number. Then, the LCM (n, n + 1) is

$5 = 5^1 \times 2^0 \times 3^0$

$6 = 2^1 \times 3^1 \times 5^0$

$(6, 6+1) \rightarrow (6, 7)$

$(5, 6)$

$LCM = 2^1 \times 3^1 \times 5^1$

$= 6 \times 5 = 30$

(A) n

(B) n + 1

(C) n(n + 1)

(D) 1

#Q. Let p be a prime number. The sum of its factors is:

A p

B 1

C p + 1

D p – 1

$5 \to 1, 5$ $7 \to 1, 7$

$p \to 1, p$

$1 + p$

$8 \to 1, 2, 4, 8$ $1+2+4+8$

Sum of its factors = 15

#Q. The LCM of two prime numbers p and q (p > q) is 221. Find the value of 3p – q.

A) 4

B) 28

C) 38

D) 48

$$\boxed{LCM(p, q) = p \times q}$$

$$p > q$$

$$221 = p \times q$$

$$\boxed{17 \times 13 = p \times q}$$

$$= 3p - q$$
$$= 3(17) - 13$$
$$= 51 - 13$$
$$= 38$$

13	221
17	17
	1

#Q. Find the greatest number which divides 85 and 72 leaving remainder 1 and 2 respectively.

$$\bigcirc \begin{array}{l} \div 85 \longrightarrow R=1 \\ \div 72 \longrightarrow R=2 \end{array}$$

$$\begin{array}{r|l} 2 & 84 \\ \hline 2 & 42 \\ 3 & 21 \\ 7 & 7 \\ & 1 \end{array} \qquad \begin{array}{r|l} 2 & 70 \\ \hline 5 & 35 \\ 7 & 7 \\ & 1 \end{array}$$

$$\bigcirc \begin{array}{l} \div 84 \longrightarrow \\ \div 70 \longrightarrow \end{array} R=0$$

$84 = 2^2 \times 3^1 \times 7^1 \times 5^0$

$70 = 2^1 \times 5^1 \times 7^1 \times 3^0$

$\text{HCF} = 2^1 \times 3^0 \times 5^0 \times 7^1$

$= 14$

#Q. Find the largest number which on dividing 1251, 9377 and 15628 leaves remainders 1, 2 and 3 respectively.

A 620

B 625

C 600

D 5

$\bigcirc \div 1251 \rightarrow R = 1$

$\div 9377 \rightarrow R = 2$

$\div 15628 \rightarrow R = 3$

H.C.F

$$\left.\begin{array}{l} \bigcirc \div 1250 \\ \div 9375 \\ \div 15625 \end{array}\right] R = 0$$

$$\begin{array}{r|l} 5 & 15625 \\ \hline 5 & 3125 \\ 5 & 625 \\ 5 & 125 \\ 5 & 25 \\ 5 & 5 \\ & 1 \end{array}$$

$4680 - 17 = 4663$ $\quad \bigcirc + 17$

#Q. Find the smallest number which increased by 17 is exactly divisible by both 520 and 468.

(A) 4663

(B) 4720

(C) 4680

(D) None of the above

$520 = 5^1 \times 2^3 \times 13^1 \times 3^0$

$468 = 2^2 \times 3^2 \times 13^1 \times 5^0$

$LCM(520, 468) = 2^3 \times 5^1 \times 13^1 \times 3^2$

$= 8 \times 5 \times 13 \times 9$

$= 360 \times 13$

$= \boxed{4680}$

$$\begin{array}{r|r} 5 & 520 \\ \hline 2 & 104 \\ 2 & 52 \\ 2 & 26 \\ 13 & 13 \\ & 1 \end{array} \qquad \begin{array}{r|r} 2 & 468 \\ \hline 2 & 234 \\ 3 & 117 \\ 3 & 39 \\ 13 & 13 \\ & 1 \end{array}$$

#Q. If 'p' and 'q' are natural numbers and 'p' is the multiple of 'q', then what is the HCF of 'p' and 'q'?

#GPK

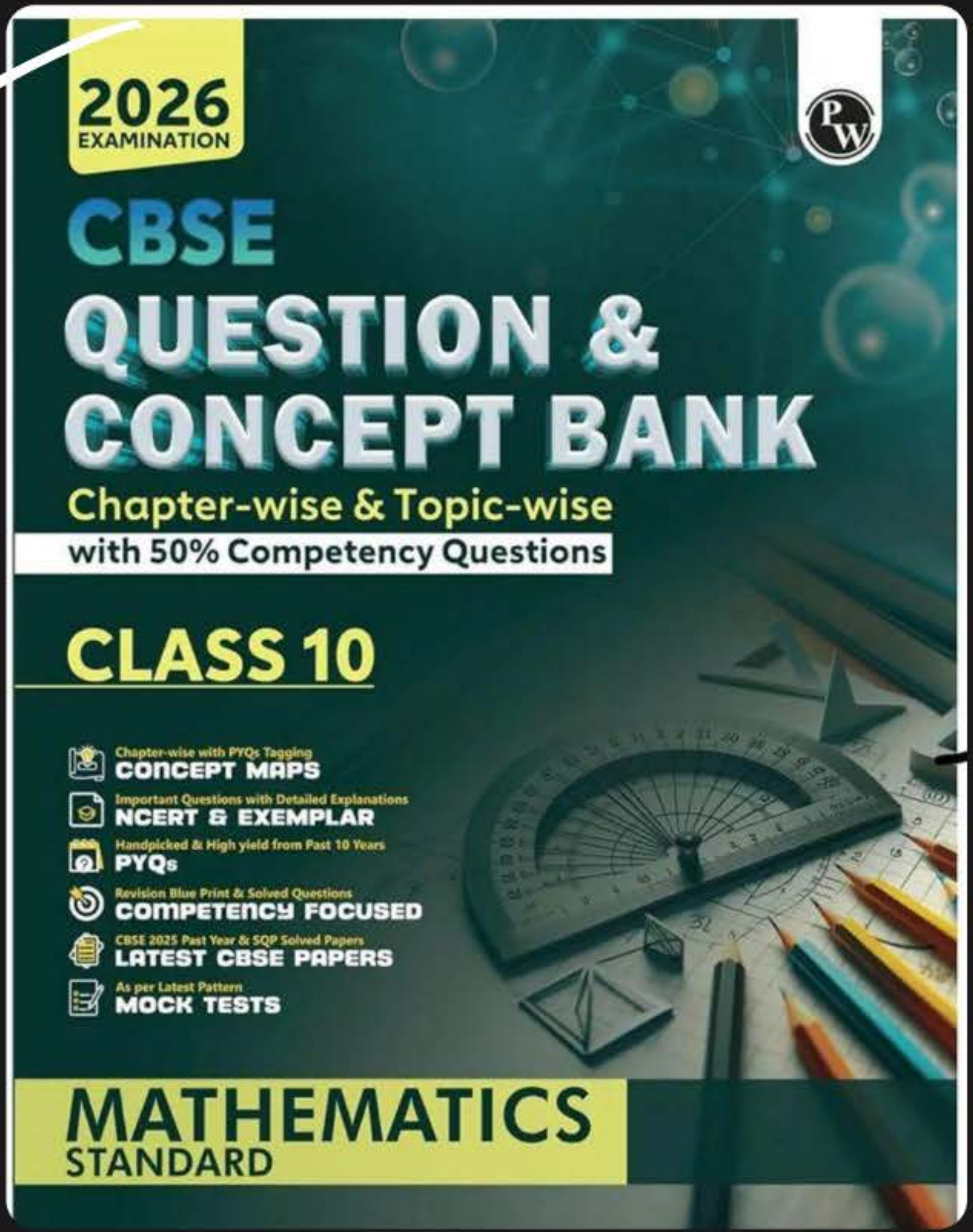
(A) pq

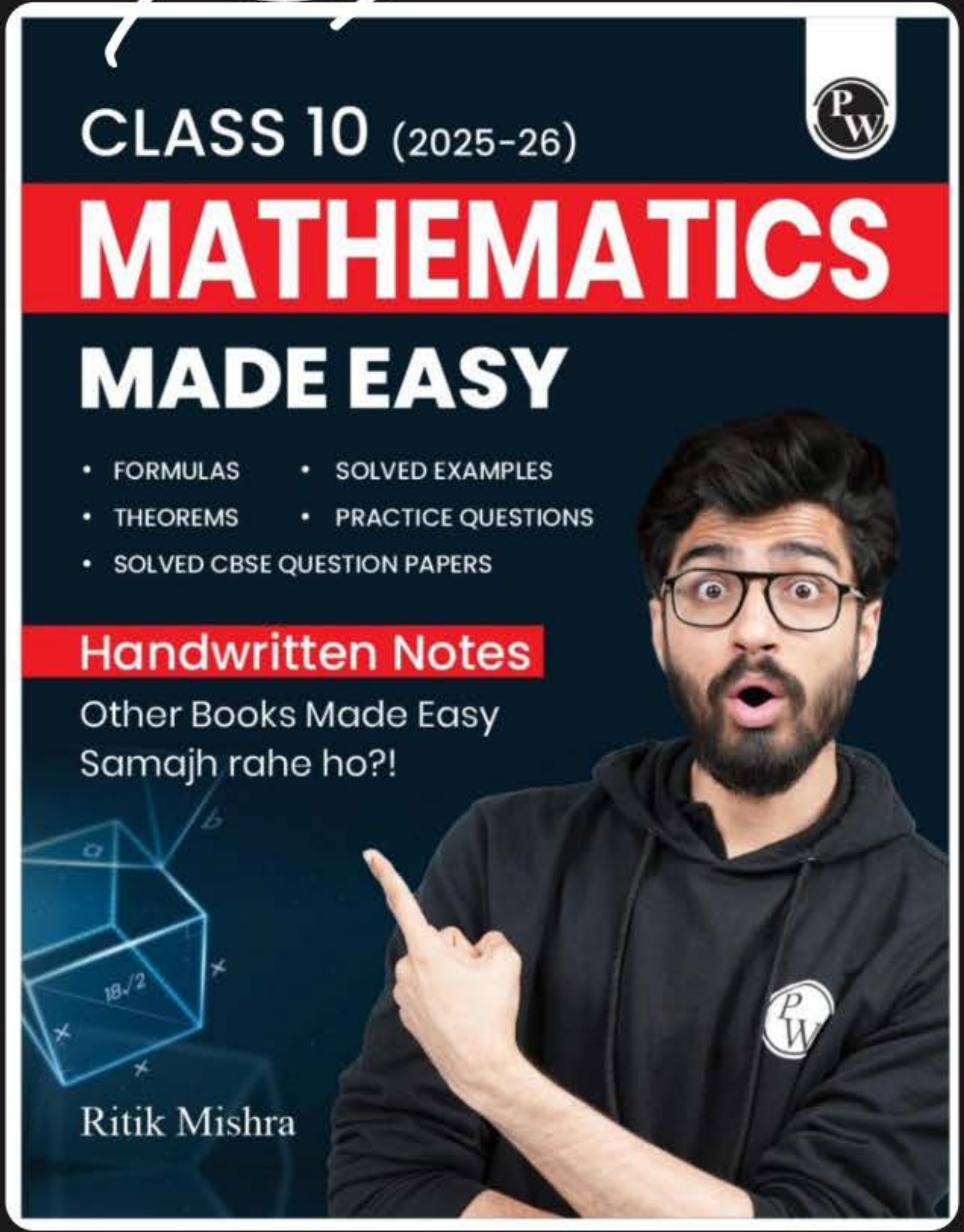
(B) p

(C) q

(D) p + q

khajana


2026
EXAMINATION
CBSE
QUESTION & CONCEPT BANK
Chapter-wise & Topic-wise
with 50% Competency Questions
CLASS 10
Chapter-wise with PYQs Tagging
CONCEPT MAPS
Important Questions with Detailed Explanations
NCERT & EXEMPLAR
Handpicked & High yield from Past 10 Years
PYQs
Revision Blue Print & Solved Questions
COMPETENCY FOCUSED
CBSE 2025 Past Year & SQP Solved Papers
LATEST CBSE PAPERS
As per Latest Pattern
MOCK TESTS
MATHEMATICS
STANDARD


CLASS 10 (2025-26)
MATHEMATICS
MADE EASY
• FORMULAS
• SOLVED EXAMPLES
• THEOREMS
• PRACTICE QUESTIONS
• SOLVED CBSE QUESTION PAPERS
Handwritten Notes
Other Books Made Easy
Samajh rahe ho?!
Ritik Mishra


WORK HARD
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NEVER GIVE UP

Thank You


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2026
REAL NUMBERS
MATHS
LECTURE-3
BY-RITIK SIR

Topics to be covered

- **A** Coprime numbers (Relatively Prime)
- **B** Relation between HCF and LCM of two numbers
- **C** Word Problems on HCF and LCM → next class.

#GPK

#Q. If 'p' and 'q' are natural numbers and 'p' is the multiple of 'q', then what is the HCF of 'p' and 'q'?

multible

multibile

(q, p)

(2, 4)

HCF = 2

LCM = 4

p > q

Factor

Factor

A pq

B p

C q

D p + q

HCF(p, q) = q

LCM (p, q) = p

(5, 20)

HCF = 5

LCM = 20

Factor

Jabh chota no., bade no. ka factor hai,

toh HCF = chota no.

LCM = bada no.

$(25, 100)$

Q. $(25, 100)$ HCF = 25

multiple

Factor

LCM = 100

$25 \times 100 = 25 \times 100$

Relation b/w HCF and LCM for two positive integers

For any two positive integers a and b

HCF(a, b) × LCM(a, b) = a × b

(a, b)

$$\boxed{HCF(a,b) \times LCM(a,b) = a \times b}$$

$\{1, 2, 3, 4, 5 \ldots \infty\}$

$\{-\infty, \ldots -5, -4, -3, -2, -1\}$

0 → naahi positive naahi negative.

#Q. Given that $\boxed{HCF(306, 657) = 9}$, find $\boxed{LCM(306, 657)}$

M.I

Prime factorisation

HCF × LCM = Product of two no.s.

$9 \times LCM = 306 \times 657$

$LCM = \frac{\cancel{306}^{34} \times 657}{\cancel{9}_{1}}$

$= 22338$

#Q. The LCM and HCF of two numbers are 180 and 6 respectively. If one of the numbers is 30 find the other number.

let = a, b

$LCM(a,b) = 180$

$HCF(a,b) = 6$

$a = 30$

$b = ?$

$HCF \times LCM = a \times b$

$6 \times 180 = 30 \times b$

$\frac{6 \times \cancel{180}^{36}}{\cancel{30}} = b$

$b = 36$

Q 144, 90

2	144
2	72
2	36
2	18
3	9
3	3
	1

2	90
5	45
3	9
3	3
	1

$144 = 2^4 \times 3^2 \times 5^0$

$90 = 2^1 \times 3^2 \times 5^1$

$HCF = 2^1 \times 3^2 \times 5^0 = \boxed{18}$

$LCM = 2^4 \times 3^2 \times 5^1 = \boxed{720}$

multiple.

factor.

#Q. Can two numbers have 16 as their HCF and 380 as their LCM? Give reason.

$HCF = 16$
$LCM = 380$] not a factor.

$\therefore$ No

HCF is always a factor of LCM.

LCM is a multiple of HCF.

cannot be their

#Q. If the LCM of two numbers is 3600, then which of the following numbers can HCF?

LCM=3600

A 600

B 500

not a factor.

C 400

D 150

#Q. Assertion (A) : For two odd prime numbers x and y, $(x \neq y)$, LCM $\boxed{(2x, 4y) = 4xy}$ True

Reason (R): LCM(x, y) is a multiple of HCF(x, y). True

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A Both A and R are true and R is correct explanation of A.

B Both A and R are true and R is NOT the correct explanation of A.

C A is true, but R is false.

D A is false, but R is true.

1, 2, 3, 4, 5, 6, 7, 8, 9

odd prime. odd prime.

x, y two odd prime

$2x = 2^1 \times x^1 \times y^0$

HCF = 1

$4y = 2^2 \times y^1 \times x^0$

LCM = xy

$LCM = 2^2 \times x^1 \times y^1 = 4xy$

2 no.s (Relatively prime)

Prime and Co-prime Numbers

Note : 2 Prime Numbers hamesha Co-prime hote hain Lekin Co-prime numbrs zaruri nahi haiki prime ho.

2, 5 → coprime

8, 9 → coprime.

Q 7, 12 → coprime

Q 3, 12 → not coprime.

HCF of coprime = 1

coprime nos → 2 nos

#Q. If a and b are $\boxed{\text{relatively prime numbers}}$, then wh$\boxed{\text{at is their HCF?}}$

1

coprime nos → 2 no's

#Q. $\boxed{\text{If a and b}}$ are r$\boxed{\text{elatively prime numbers,}}$ then what is their LCM?

ab

#Q. Two numbers are in the ratio 2 : 3 and their LCM is 180. what is the HCF of these numbers?

CBSE(2023)

let the no's be $2x$ and $3x$

$LCM(2x, 3x) = 180$

$HCF(2x, 3x) = ?$

$2x = 2^1 \times x^1 \times 3^0$

$3x = 3^1 \times x^1 \times 2^0$

$HCF = 2^0 \times 3^0 \times x^1 = \boxed{x}$

$LCM = 2^1 \times 3^1 \times x^1 = \boxed{6x}$

$LCM = 180$

$6x = 180$

$x = \frac{180}{6}$

$\boxed{x = 30}$

$\therefore HCF = 30$

#Q. Explain why $\boxed{7 \times 11 \times 13 + 13}$ and $\boxed{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5}$ are $\boxed{\text{composite numbers.}}$

$5\left[7 \times 6 \times 4 \times 3 \times 2 + 1\right]$

$5\left[1009\right]$

Let $x = \underline{7 \times 11 \times 13} + \underline{13}$

$x = 13\left[7 \times 11 + 1\right]$

$x = 13\left[78\right]$

$13[78] \to 13,\ 78,\ 1,\ 13 \times 78$

Clearly 'x' has more than 2 factors, $\therefore$ composite no.

$5[1009] \to 1,\ 5,\ 1009,\ 5 \times 1009$

Q. prove 10 is a composite no.

$10 \to 1,\ 2,\ 5,\ 10$

Since 10 has more than 2 factors, $\therefore$ 10 is a composite no.

#GPk

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

#Q. Let x and y 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 HCF (p, q, r) × LCM (p, q, r) = p × q × r or not.

#GPK

$HCF = xy^2$

$LCM = x^5y^4$

$$xy^2 \times x^5y^4 = x^2y^3 \times xy^4 \times x^5y^2$$

$$\boxed{x^6y^6 \neq x^8y^9}$$

#Q. If the least prime factors of two positive integers a and b are 5 and 13 respectively, then the least prime factor of a + b, is ______.

#GPK

A 2

B 3

C 5

D 1

#GPL

#Q. Teaching Mathematics through activities is a powerful approach that enhances student's understanding and engagement. Keeping this a mind Ms. Mukta planned a prime number game for class 5 students. She announces the number 2 in her class and asked the first sutdnet to multiply it by a prime number and then pass it to second student. Second student also multiplied it by a prime number and passed it to third student. In this way by multiplying to a prime number, the last student got 173250.

Now, Mukta asked some questions as given below to the students:

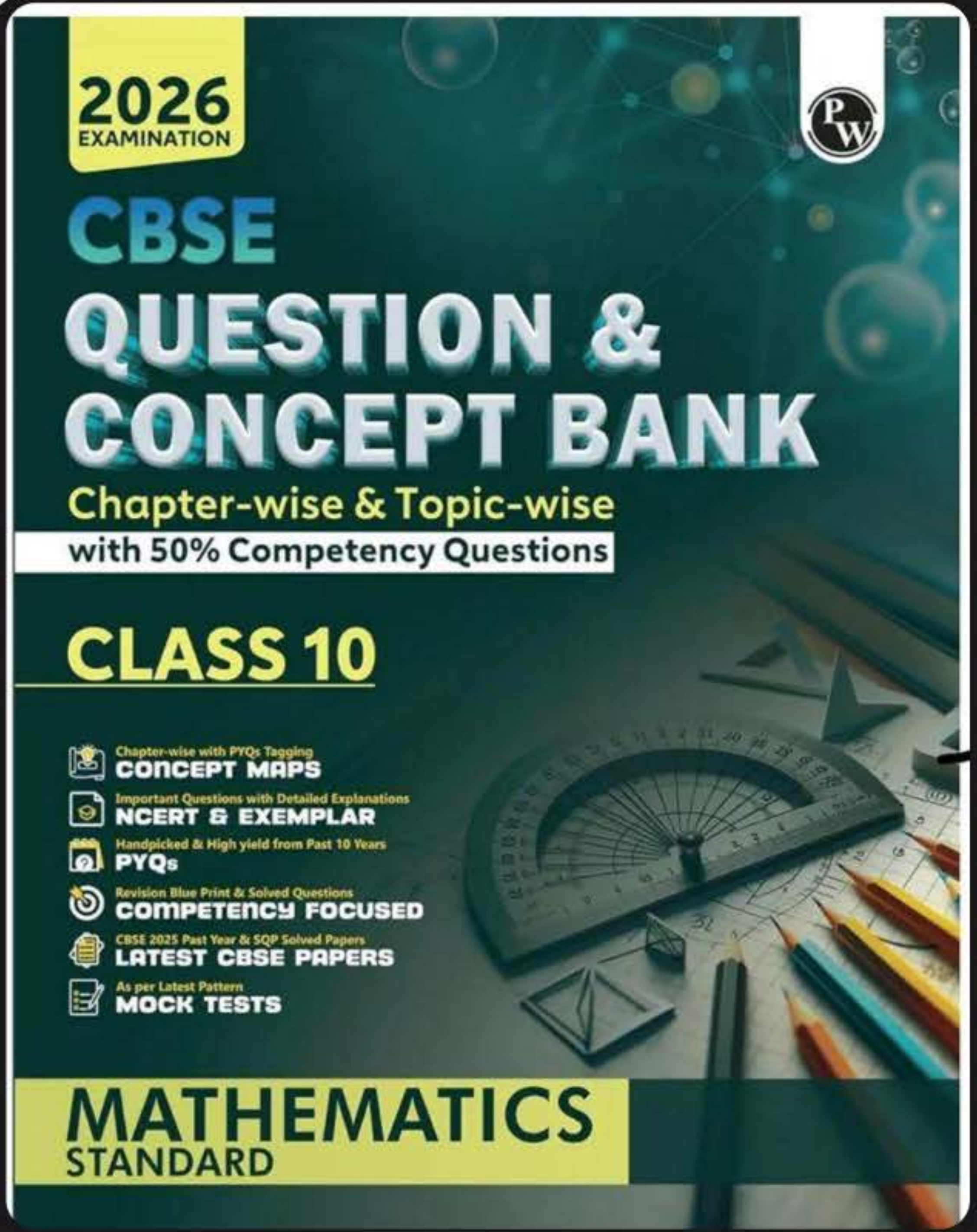
(i) What is the least prime number used by students?

(ii) (a) How many students are in the class?

OR

(b) What is the highest prime number used by students?

(iii) Which prime number has been used maximum times?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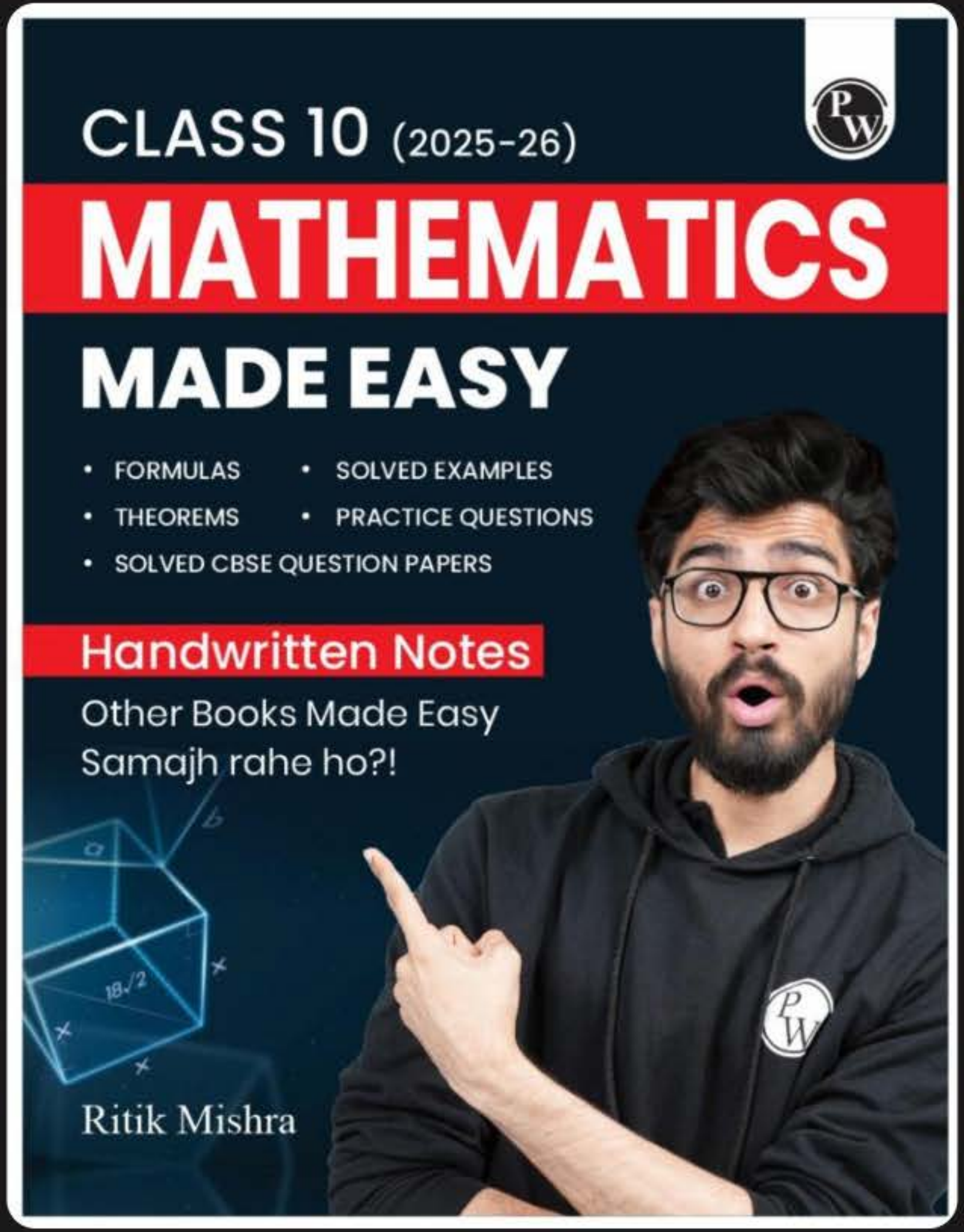
Next week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NEVER GIVE UP

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UDAAN
2026
REAL NUMBERS
MATHS
LECTURE-4
BY-RITIK SIR

Topics *to be covered*

A Word Problems on HCF and LCM

B. Kuch Or Badhiya Sawaal

#GPh

#Q. If the least prime factors of two positive integers a and b are 5 and 13 respectively, then the least prime factor of a + b, is _______.

(A) 2

(B) 3

(C) 5

(D) 1

a → 5

b → 13

odd no.

a+b → even

least prime factor

2

★ 1, 2, 3, 4, 5, 6, 7, 8 . . . .

even prime no.

★ odd + odd = even

$\boxed{4}$ → 1, 2, 4

$\boxed{6}$ → 1, 2, 3, 6

12 → 1, 2, 3, 4, 6, 12

CBSE 2023 Ms. Mukta $2 \times 5 \times 5 \times 5 \times 3 \times 3 \times 7 \times 11$ #GPL

#Q. Teaching Mathematics through activities is a powerful approach that enhances student's understanding and engagement. Keeping this a mind Ms. Mukta planned a prime number game for class 5 students. She announces the number 2 in her class and asked the first sutdnet to multiply it by a prime number and then pass it to second student. Second student also multiplied it by a prime number and passed it to third student. In this way by multiplying to a prime number, the last student got 173250.

Now, Mukta asked some questions as given below to the students:

(i) What is the least prime number used by students? 3

(ii) (a) How many students are in the class? 7

OR

(b) What is the highest prime number used by students? 11

(iii) Which prime number has been used maximum times? 5

$$\begin{array}{r|l} 2 & 173250 \\ \hline 5 & 86625 \\ 5 & 17325 \\ 5 & 3465 \\ 3 & 693 \\ 3 & 231 \\ 7 & 77 \\ 11 & 11 \\ & 1 \end{array}$$

#Q. If sum of two numbers is 1215 and their HCF is 81 the possible number of pairs of such numbers are

Next class

A 2

B 3

C 4

D 5

#Q. Find the number of possible pairs of the product of two numbers and HCF are 4500 and 15 respectively.

Next class

A. 1

B. 2

C. 3

D. 4

#Q. The sum of two positive numbers is 240 and their HCF is 15. Find the number of pairs of numbers satisfying the given condition.

Next class

Word Problems of HCF and LCM

Points to be Noted

- Read the question carefully, very carefully.
- Abh ye judge kro ki aapka answer given data se bada hai ya chota aayega.

Chota → $\boxed{F}$actor → HC$\boxed{F}$

Bada → $\boxed{M}$ultiple → LC$\boxed{M}$

- HCF of students, Students hi aayega.

50 girls.

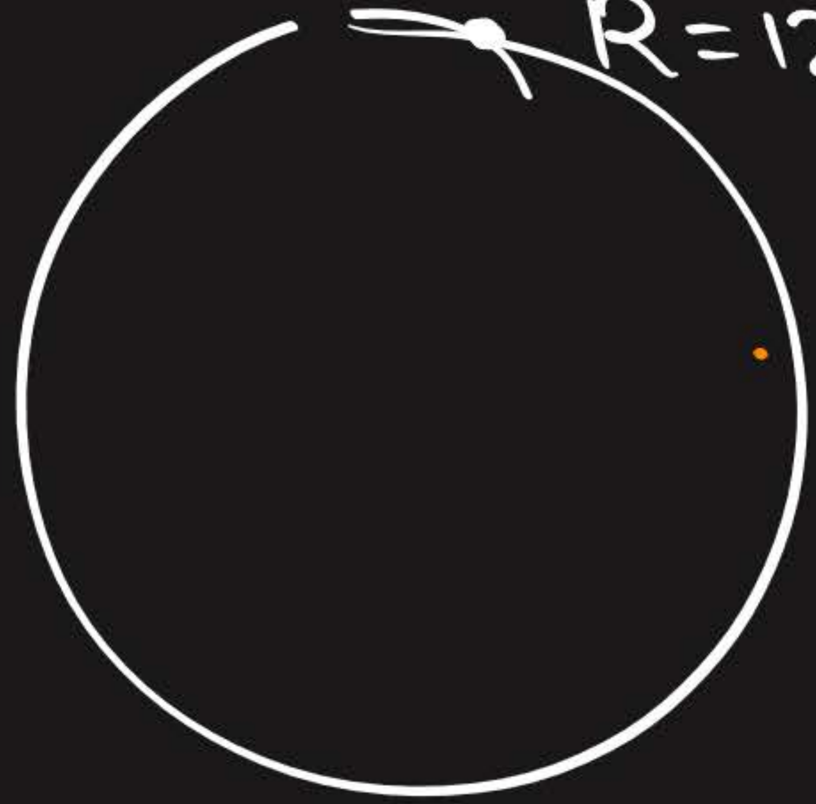
60 girls.

O girls.

#Q. There is a circular path around a sports field. Priya takes 18 minutes to drive one round of the field, while Ravish takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point?

$P = 18$ min

$R = 12$ min



$18 = 2^1 \times 3^2$

$12 = 2^2 \times 3^1$

$\text{LCM}(18, 12) = 2^2 \times 3^2 = \boxed{36 \text{ minutes.}}$

#Q. In a school there are two sections - section A and section B of classX. There are 32 students in section A and 36 students in section B. Determine the minimum number of books required for their class library so that they can be distributed equally among students of section A or section B.

(A) 30

(B) 32

(C) 36

(D) NOTA

A = 32's

B = 36's

$32 = 2^5 \times 3^0$

$36 = 2^2 \times 3^2$

$LCM = 2^5 \times 3^2 = 32 \times 9 = \boxed{288}$

$$\begin{array}{r|l} 2 & 32 \\ \hline 2 & 16 \\ 2 & 8 \\ 2 & 4 \\ 2 & 2 \\ & 1 \end{array} \qquad \begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ 3 & 9 \\ 3 & 3 \\ & 1 \end{array}$$

288 books Ans//

#Q. 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?

CBSE 2023

A 6 : 18 AM

B 6 : 18 PM

C 6 : 36 AM

D 6 : 30 PM

6 min
12 min
18 min

6 A.M

$\boxed{LCM = 36 min}$

$6:06, 6:12, 6:18, 6:24, 6:30, \boxed{6:36}$ ......

$6:12, 6:24, \boxed{6:36}$ ......

$6:18, \boxed{6:36}$ ......

#Q. Four bells ring at an interval of 4, 7, 12 and 14 seconds respectively. If the four bells begin to ring at 12 O'clock when will this next ring together and how often will they do so in the next 14 minutes.

2	4, 7, 12, 14
7	2, 7, 6, 7
2	2, 1, 6, 1
3	1, 1, 3, 1
	1, 1, 1, 1

LCM = 84 seconds

60 s + 24 s

1 min + 24 s

12:01:24

min → sec.

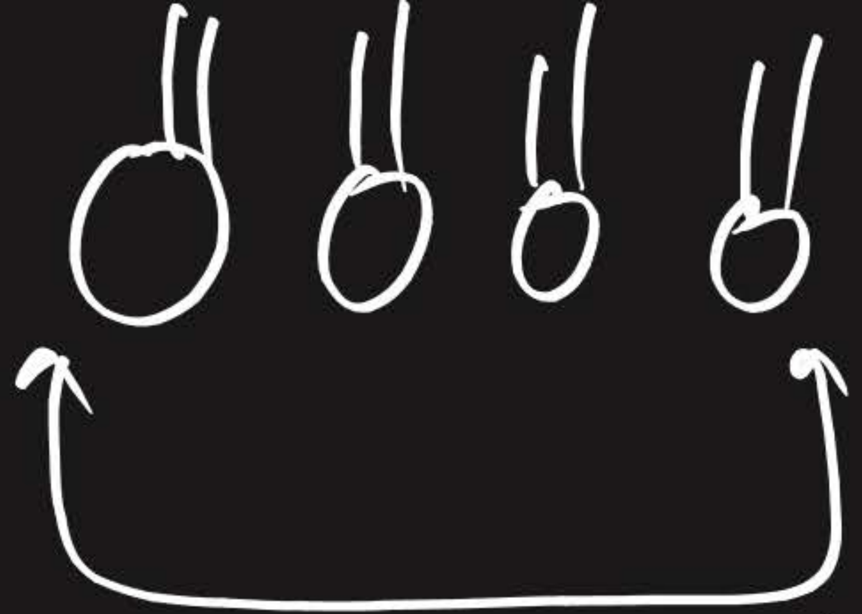
1 min = 60 seconds.

14 min = (14 × 60) seconds

14 min = 840 seconds

no. of times they will ring together $= \frac{840}{84} = 10$ times Ans.

140 seconds



20 seconds

$$\frac{14\cancel{0}}{2\cancel{0}} = 7$$

20 20 20 20 20 20 20

#Q. The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds. If they change simultaneously at 7 a.m., at what time will they change together next?

CBSE 2023

#GPK

#Q. On a morning walk, three persons step off together and their steps measure 40 cm, 42 cm and 45 cm respectively. What is the minimum distance each should walk so that each can cover the same distance and complete steps?

LCM

NCERT Exampler

#Q. A seminar is being conducted by an education orgainisation, where the participants will be educators of different subjects. The numbers of participants in Hindi, English and Mathematics are 60, 84 and 108 respectively.

H = 60 p'

E = 84 p'

M = 108 p'

(i) In each room the same number of participants are to be seated and all of them being in the same subject, hence the maximum number of participants that can be accomodated in each room is

A 14

B 12

C 16

D 18

(ii) The minimum number of rooms required during the event, is

A 21

B 8

C 7

D 5

$$\begin{array}{r|l} 2 & 60 \\ \hline 2 & 30 \\ 5 & 15 \\ 3 & 3 \\ & 1 \end{array} \qquad \begin{array}{r|l} 2 & 84 \\ \hline 2 & 42 \\ 7 & 21 \\ 3 & 3 \\ & 1 \end{array} \qquad \begin{array}{r|l} 2 & 108 \\ \hline 2 & 54 \\ 3 & 27 \\ 3 & 9 \\ 3 & 3 \\ & 1 \end{array}$$

$60 = 2^2 \times 5^1 \times 3^1 \times 7^0$

$84 = 2^2 \times 7^1 \times 3^1 \times 5^0$

$108 = 2^2 \times 3^3 \times 5^0 \times 7^0$

HCF $= 2^2 \times 3^1 \times 5^0 \times 7^0$

= 12 participants

$H = \frac{60}{12} = \boxed{5}$ Rooms.

$E = \frac{84}{12} = \boxed{7}$ Rooms.

$M = \frac{108}{12} = \boxed{9}$ Rooms.

21 Rooms

#Q. Three sets of Science, History and Drawing books have to be stacked in such a way that all the books are stored topic wise and the height of each stack is the same. The number of Science books is 192, the number of History books is 480 and the number of Drawing books is 672. Assuming that the books are of the same thickness, determine the number of stacks of Science, History and Drawing books.

#GPK

#Q. A furit vendor has 990 apples and 945 organs. He packs them into basket. Each basket contains only one of the two fruits but in equal number. Find the number of fruits to be put in each basket in order to have minimum number of basket.

Board Term-I, 2016

#GPk

#Q. The length, breadth and height of a room are $\boxed{8 \text{ m } 50 \text{ cm}}$, 6 m 25 cm and 4 m 75 cm respectively. Find the length of the longest rod that can measure the dimensions of the room exactly.

Board Term-I, 2016

#GPK

(A) 20 cm

(B) 5 cm

(C) 1 cm

(D) 2 cm

8m 50cm.

800cm + 50cm

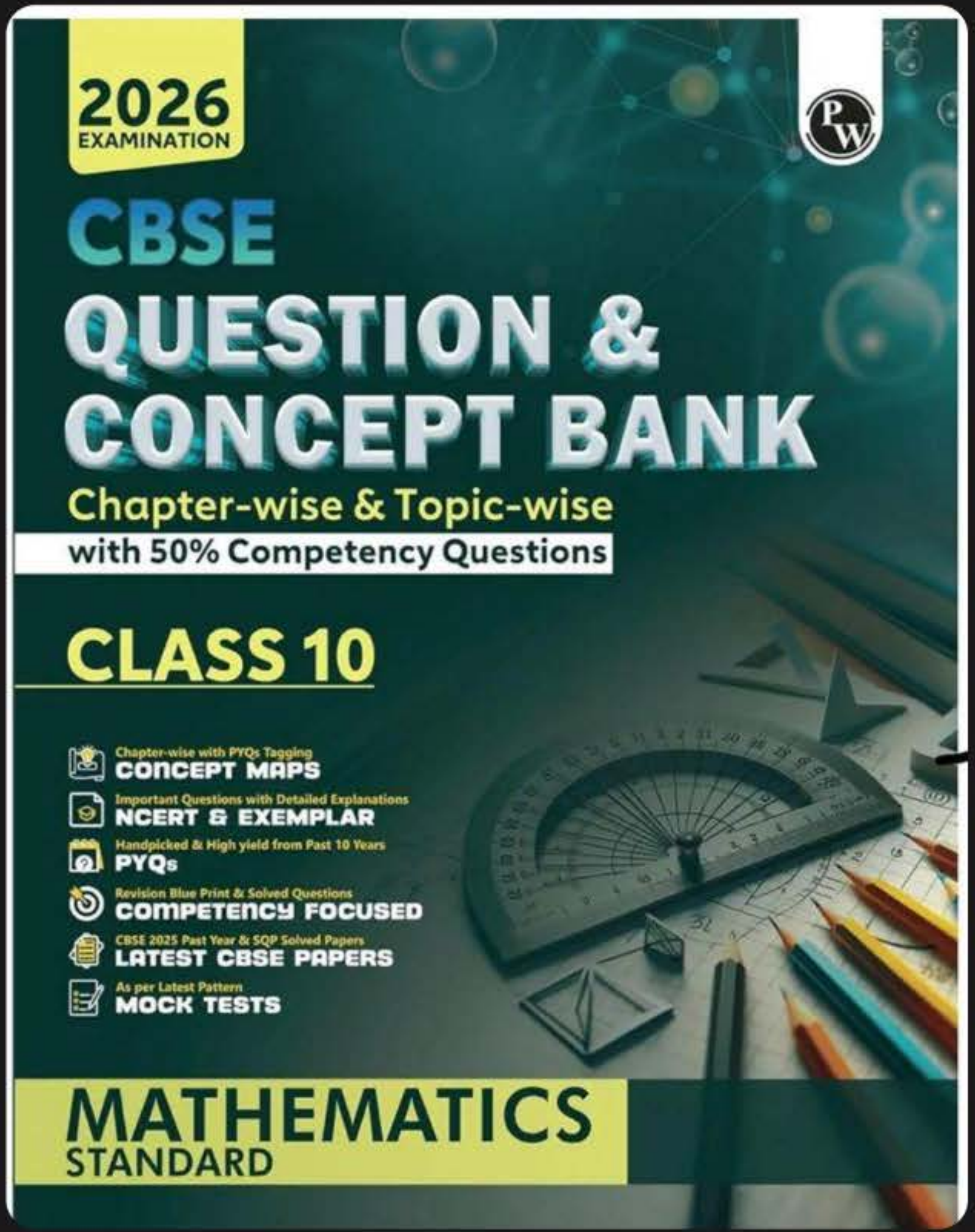
$= \boxed{850cm}$

1m = 100cm

2m = (2×100)cm

8m = (8×100)cm

3+3=6



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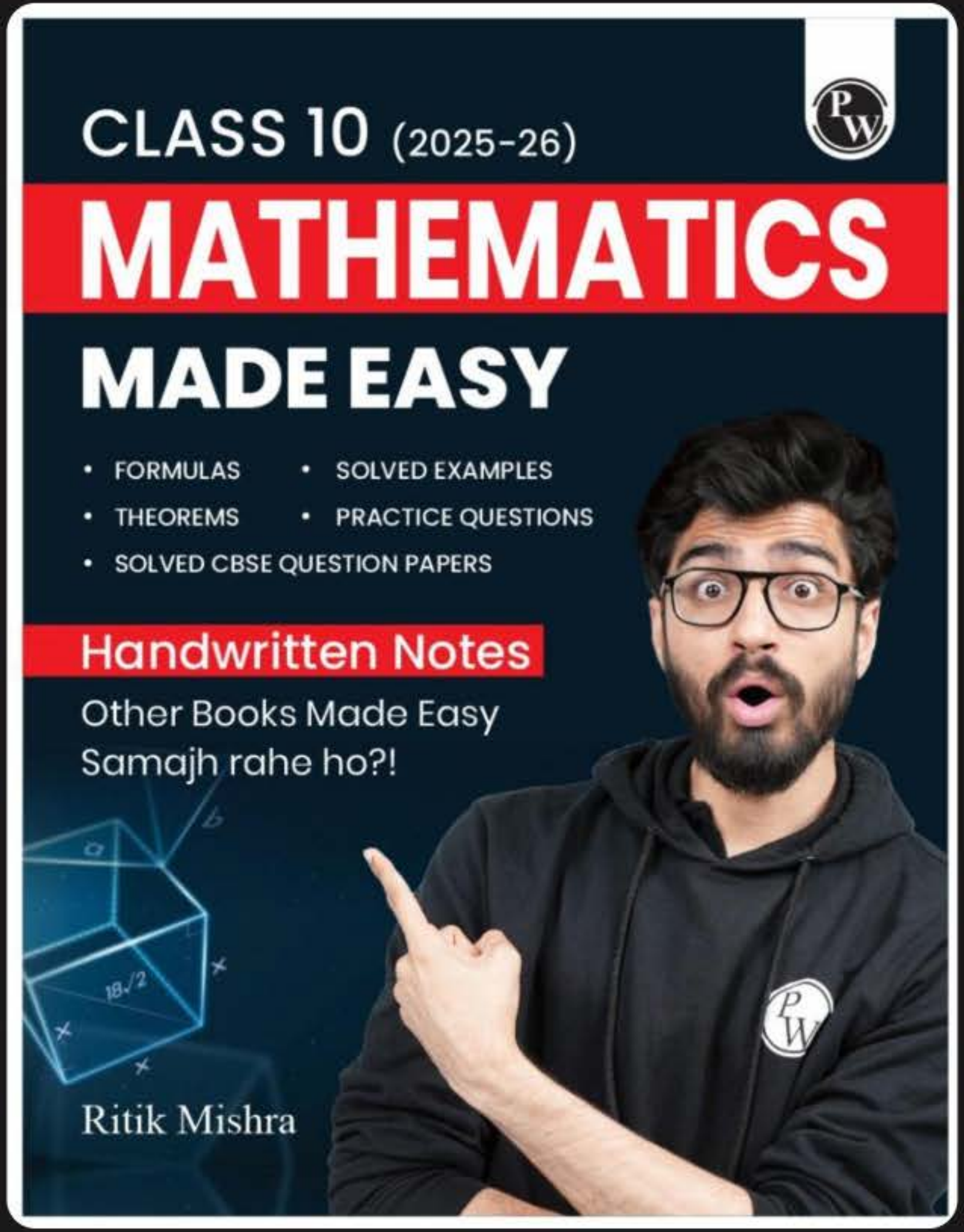

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UDAAN
2026
REAL NUMBERS
MATHS
LECTURE-5
BY-RITIK SIR

Topics *to be covered*

- **A** Real Numbers (Basic of Rational and Irrational Numbers)
- **B** Proof of Irrationality

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Real Numbers

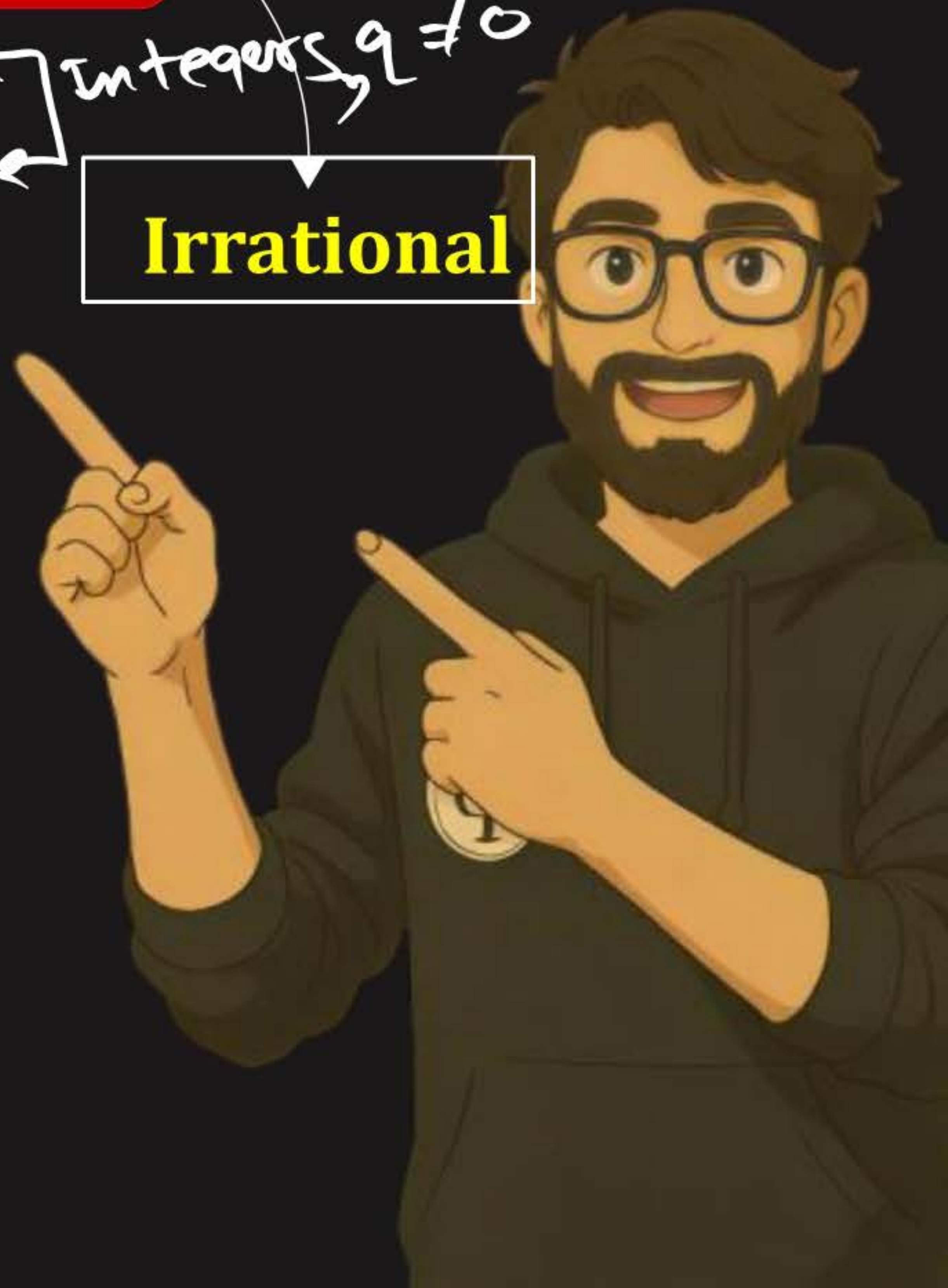
$\frac{p}{q}$ ← Integers, $q \neq 0$

Rational

- **Integers**
  $\{-\infty \ldots -2, -1, 0, 1, 2 \ldots \infty\}$
  naahi -ve
  naahi +ve
  $\frac{3}{-5}$ ✓
- **Natural Numbers**
  $\{1, 2, 3, 4, 5, \ldots. \infty\}$
- **Whole Numbers**
  $\{0, 1, 2, 3, \ldots \infty\}$

$\neq \frac{p}{q}$ ← Integers, $q \neq 0$

Irrational



Real no.

T

N.T.R

N.T.N.R

2.5

3.52

2.142857

$(2.\overline{15})$ 2.1515151515....

$(3.92\overline{5})$ 3.925555555.....

2.813813813...–

$(2.\overline{813})$

6.92365789456 25...

Rational nos.

Irrational no.

Irrational no.

$\sqrt{3} = 3^{1/2}$

1. N.T.N.R
2. $\sqrt{\text{not a perfect Square}}$
3. $\sqrt{\text{Prime no.}}$

Perfect square no.s

1, 4, 9, 16, 25, 36

$(1)^2$ $(2)^2$ $(3)^2$ $(6)^2$

Q. $\sqrt{8}$ = Irr.

Q. $\sqrt{5}, \sqrt{7}, \sqrt{11}, \sqrt{17}$

Q. $\sqrt{49}$ = rational.

$49^{1/2} = (7^2)^{1/2} = 7^{2 \times \frac{1}{2}}$

$= 7$

① $R + Irr = Irr$

② $R - Irr = Irr$

③ $R \times Irr = Irr$

non-zero

④ $R \div Irr = Irr$

$$\boxed{Irr \overset{+}{\underset{\times}{}} \overset{-}{\underset{\div}{}} Irr = R / Irr}$$

Q. $2+\sqrt{3} = Irr.$

Q. $\sqrt{3} \times \sqrt{7} = \sqrt{21} = Irr.$

Q. $\frac{3}{\sqrt{2}} = Irr.$

Q. $(3+\cancel{\sqrt{2}}) + (5-\cancel{\sqrt{2}}) = 8$

Irr Irr Rational.

Concept #1

Rational = $\frac{p}{q}$ coprime integers.

$\frac{5}{1}$ ~~25~~ ~~75~~ S

~~44~~ ~~22~~ 11

~~28~~ ~~14~~ 7

= 11/7

Theorem 2

Let p be a prime number and a be a positive integer.

If p divides a^2, then p divides a.

$2 \to 4^2$, $2 \to 4$

$3 \to 9^2$, $3 \to 9$

$5 \to p^2$, $5 \to p$

Concept 3

$21 = \underline{3} \times 7$

$\downarrow$

$\boxed{3 \text{ divides } 21}$

$q = 7a$

$\downarrow$

$\boxed{7 \text{ divides } q}$

$P = 3c$

$\downarrow$

$\boxed{3 \text{ divides } p}$

$p^2 = 5q^2$

$\downarrow$

$\boxed{5 \text{ divides } p^2}$ +ve integer.

$\boxed{5 \text{ divides } p \text{ also}}$

2 divides q.

$\downarrow$

$q = 2 \times c$

$q = 2a$

$q = 2b$

$q = 2d$

#Q. Prove that $\sqrt{3}$ is an irrational number.

NCERT, CBSE 2009, 10, 19, 23

p or q ka 1 key alawa koi or common facta nahi hoga.

Let $\sqrt{3}$ be rational.

$\therefore \sqrt{3} = \frac{p}{q}$ ['p' and 'q' are coprime integers]

Squaring both sides.

$(\sqrt{3})^2 = \left(\frac{p}{q}\right)^2$

$3 = \frac{p^2}{q^2}$

$3q^2 = p^2$

$\Rightarrow$ 3 divides p^2

$\Rightarrow$ $\boxed{\text{3 divides p also}}$ — (1)

let, $\boxed{p = 3c}$

$3q^2 = (3c)^2$

$3q^2 = 9c^2$

$\Rightarrow q^2 = \frac{\cancel{9}c^2}{\cancel{3}}$

$q^2 = 3c^2$

$\Rightarrow$ 3 divides q^2

$\Rightarrow$ $\boxed{\text{3 divides q also}}$ (2)

From (1) and (2)

3 is a common factor of 'p' and 'q'.

this makes our assumption wrong.

$\therefore \sqrt{3}$ is irrational.

H.P

#Q. Prove that $\sqrt{2}$ is an irrational number.

NCERT, CBSE 2010, 23

let, $\sqrt{2}$ be rational.

$\therefore \sqrt{2} = \frac{p}{q}$ ['p' and 'q' are coprime integers]

Squaring both sides,

$(\sqrt{2})^2 = \left(\frac{p}{q}\right)^2$

$2 = \frac{p^2}{q^2}$

$2q^2 = p^2$

$\Rightarrow$ 2 divides p^2

$\Rightarrow$ $\boxed{\text{2 divides } p \text{ also}}$ (1)

let, $p = 2c$

$2q^2 = (2c)^2$

$2q^2 = 4c^2$

$q^2 = 2c^2$

$\Rightarrow$ 2 divides q^2

$\Rightarrow$ $\boxed{\text{2 divides } q \text{ also}}$ (2)

From (1) and (2)

2 is a common factor of p and q.

this makes our assumption wrong.

∴ $\sqrt{2}$ is irrational.

H.P

#Q. Given that $\sqrt{2}$ is irrational, prove that $(5 + 3\sqrt{2})$ is an irrational number.

CBSE 2018

let, $5+3\sqrt{2}$ be rational.

$\therefore\ 5+3\sqrt{2} = \frac{p}{q}$ ['p' and 'q' are coprime integers]

$3\sqrt{2} = \frac{p}{q} - \frac{5}{1}$

$3\sqrt{2} = \frac{p-5q}{q}$

$\boxed{\sqrt{2} = \frac{p-5q}{3q}}$ → Rational.

Irr.

this is not possible.

$\therefore\ 5+3\sqrt{2}$ is irrational.

$I \times I = I \rightarrow R$

$I + I = I \rightarrow R$

$I - I = I \rightarrow R$

$\frac{I}{I}$ = Rational.

$\frac{4}{2} = 2$ I, R. $\frac{2}{4} = \frac{1}{2}$ R

#Q. Prove that $3 + 2\sqrt{5}$ is an irrational.

NCERT

#GPK

#Q. Prove that $\boxed{\frac{2+\sqrt{3}}{5}}$ is an irrational number, given that $\sqrt{3}$ is an irrational number.

CBSE 2019

let, $\frac{2+\sqrt{3}}{5}$ be rational.

$\therefore \frac{2+\sqrt{3}}{5} = \frac{p}{q}$ ['p' and 'q' are integers]

$2+\sqrt{3} = \frac{5p}{q}$

$\sqrt{3} = \frac{5p}{q} - \frac{2}{1}$

$\boxed{\sqrt{3} = \frac{5p-2q}{q}}$ → R

Irr

this is not possible.

$\therefore \frac{2+\sqrt{3}}{5}$ is irrational.

$(a-b)^2 = a^2 + b^2 - 2ab$

#Q. Prove that $\boxed{\sqrt{2}+\sqrt{3}}$ is irrational.

NCERT Exemplar

let, $\sqrt{2}+\sqrt{3}$ is rational.

$\therefore \sqrt{2}+\sqrt{3} = \frac{p}{q}$ ['p' and 'q' are integers]

$\sqrt{3} = \frac{p}{q} - \sqrt{2}$

squaring both sides.

$(\sqrt{3})^2 = \left(\frac{p}{q} - \sqrt{2}\right)^2$

$3 = \left(\frac{p}{q}\right)^2 + (\sqrt{2})^2 - 2 \cdot \frac{p}{q} \cdot \sqrt{2}$

$3 = \frac{p^2}{q^2} + 2 - \frac{2\sqrt{2}p}{q}$

$\frac{2\sqrt{2}p}{q} = \frac{p^2}{q^2} + 2 - 3$

$\frac{2\sqrt{2}p}{q} = \frac{p^2}{q^2} - 1$

$$\frac{2\sqrt{2}p}{q} = \frac{p^2-q^2}{q^2}$$

$$\sqrt{2} = \frac{(p^2-q^2)\cancel{q}}{2p \cdot q^{\cancel{2}}}$$

I

$$\sqrt{2} = \frac{p^2-q^2}{2pq}$$ R

this is not possible.

$\Rightarrow$ Our assumption was wrong.

$$\boxed{\therefore \sqrt{2}+\sqrt{3} \text{ is irrational.}}$$

#Q. If p, q are prime positive integers, prove that $\sqrt{p} + \sqrt{q}$ is an irrational number.

NCERT Exemplar

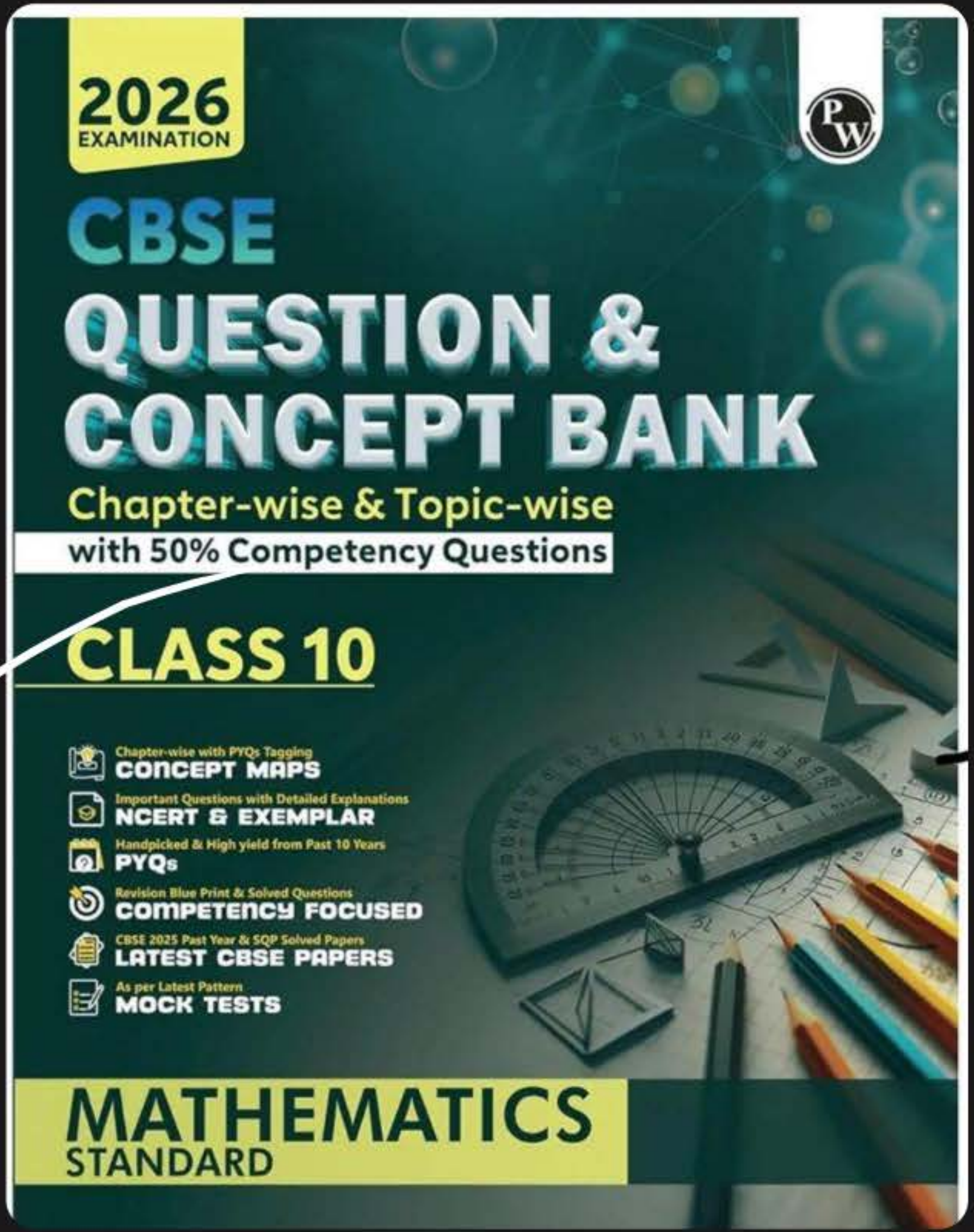
#GPh

Let, $\sqrt{p}+\sqrt{q} \rightarrow$ Rational.

$\therefore \sqrt{p}+\sqrt{q} = \frac{a}{b}$ ['a' and 'b' integers]

$(\sqrt{q})^2 = \left(\frac{a}{b} - \sqrt{p}\right)^2$

#DPP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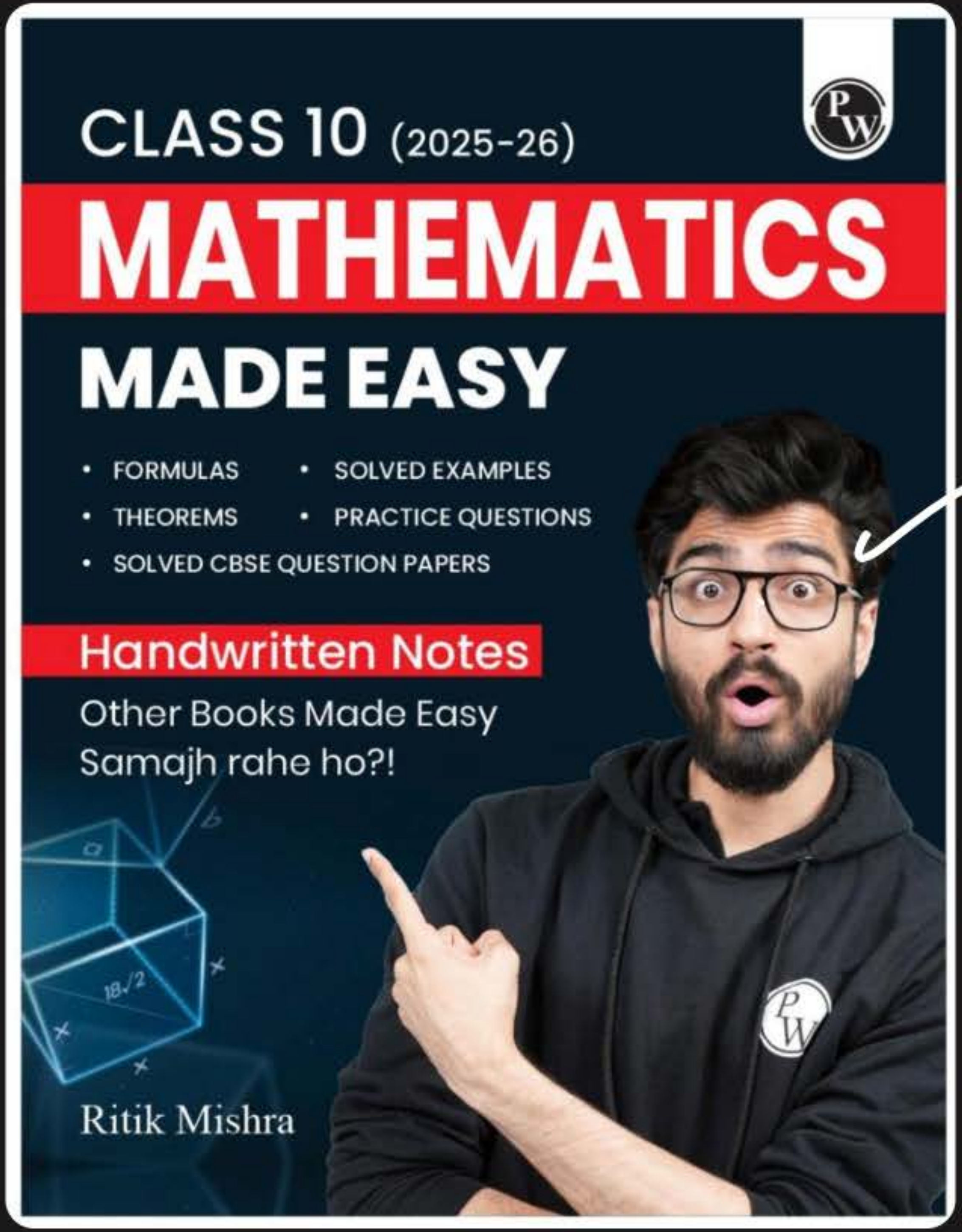
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2026
REAL NUMBERS
MATHS
LECTURE-6
BY-RITIK SIR

Topics *to be covered*

A. Fundamentals Theorem of Arithmetic

B. Miscellaneous Questions

Phone pe

20

#Q. If sum of two numbers is 1215 and their HCF is 81 the possible number of pairs of such numbers are

A 2

B 3

C 4

D 5

Let the no.s be 81x and 81y, where x and y are coprimes.

$$\boxed{81x+81y=1215}$$

$$81(x+y)=1215$$

$$x+y=\frac{\cancel{1215}\ \cancel{135}\ 15}{\cancel{81}\ \cancel{9}\ 1}$$

$$\boxed{x+y=15}$$

(1, 14), (2, 13), (3, 12), (4, 11), (5, 10), (6, 9), (7, 8).

$\bigcirc = 2 \times 9$

$\bigcirc = 2 \times 7$

coprimes.

HCF = 2

$\bigcirc = 15 \times x$

$\bigcirc = 15 \times y$

coprime.

HCF = 15

$\bigcirc = 91\,x$

$\bigcirc = 91\,y$

coprime.

HCF = 91

#Q. Find the number of possible pairs of the product of two numbers and HCF are 4500 and 15 respectively.

A 1

B 2

C 3

D 4

$15x, 15y$

Coprimes.

$15x \times 15y = 4500$

$x \times y = \frac{4500}{15 \times 15}$

$\boxed{x \times y = 20}$

(1, 20), (4, 5), (2, 10)

$\bigcirc \times \bigcirc = 4500.$

HCF = 15.

#Q. The sum of two positive numbers is 240 and their HCF is 15. Find the number of pairs of numbers satisfying the given condition.

$15x, 15y$

coprimes.

$15x + 15y = 240$

$15(x+y) = 240$

$x + y = \frac{240}{15} = 16$

$\boxed{x+y=16}$

$(1,15), \cancel{(2,14)}, (3,13),$
$\cancel{(4,12)}, (5,11), \cancel{(6,10)},$
$(7,9), \cancel{(8,8)}$

$\bigcirc + \bigcirc = 240$

HCF = 15

Ans = 4

Theorem 1

Fundamental Theorem of Arithmetic:

Every composite number can be expressed (factorised) as a product of primes, and this factorization is unique except for the order in which the prime factors occur.

Fundamental Theorem of Arithmetic

$$
\begin{array}{r|l}
2 & 82 \\ \hline
41 & 41 \\
 & 1
\end{array}
\qquad
\begin{array}{r|l}
2 & 144 \\ \hline
2 & 72 \\
2 & 36 \\
2 & 18 \\
3 & 9 \\
3 & 3 \\
 & 1
\end{array}
$$

Unique

Composite numbers = **Product of Primes**

$$
\begin{array}{r|l}
2 & 40 \\ \hline
2 & 20 \\
2 & 10 \\
5 & 5 \\
 & 1
\end{array}
$$

$40 = 2^3 \times 5^1$

$82 = 2^1 \times 41^1$

$\boxed{144 = 2^4 \times 3^2}$

#Q. Prove that there is no natural number n for which 4^n ends with the digit zero.

4^n

$n=1,\ 4^1=4$

$n=2,\ 4^2=16$

$n=3,\ 4^3=64$

$n=4,\ 4^4=256$

$4^n=(2\times2)^n$

$=(2^2)^n$

$4^n=2^{2n}$

Since, 4^n does not contain 5 as a prime factor, ∴ 4^n cannot end with the digit '0'.

#Q. Show that 12^n cannot ends with digit 0 or 5 for any natural number n.

Sol. Expressing 12 as the product of primes, we obtain

$$12 = 2^2 \times 3 \Rightarrow 12^n = (2^2 \times 3)^n = (2^2)^n \times 3^n = (2)^{2n} \times 3^n$$

So, only primes in the factorization of 12^n are 2 and 3 and, not 5.

Hence 12^n cannot end with digit 0 or 5.

$$12^n = (2^2 \times 3^1)^n$$

$$= (2^2)^n \times (3^1)^n$$

$$12^n = \boxed{2^{2n} \times 3^n}$$

#Q. Check whether 62^n can end with the digit 0 for any natural number n.

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$$62^n = (2 \times 31)^n$$

$$= \boxed{2^n \times 31^n}$$

natural no.

$$\begin{array}{r|l} 2 & 62 \\ \hline 31 & 31 \\ & 1 \end{array}$$

$$(72)^n = (2^3 \times 3^2)^n$$

$$= (2^3)^n \times (3^2)^n$$

$$= \boxed{2^{3n} \times 3^{2n}}$$

2	72
2	36
2	18
3	9
3	3
	1

#Q. Find the greatest number of 6 digit exactly divisible by 24, 15 and 36.

$$
\begin{array}{r|l}
2 & 24, 15, 36 \\
\hline
3 & 12, 15, 18 \\
5 & 4, 5, 6 \\
2 & 4, 1, 6 \\
2 & 2, 1, 3 \\
3 & 1, 1, 3 \\
 & 1, 1, 1
\end{array}
$$

$\boxed{LCM = 360}$

$$
\begin{array}{r|l}
360 & 999999 \;(2777) \\
 & \underline{720} \\
 & 2799 \\
 & \underline{2520} \\
 & 02799 \\
 & \underline{2520} \\
 & 02799 \\
 & \underline{2520} \\
 & 0\boxed{279}
\end{array}
$$

$999999 - 279$

$= \boxed{999720}$

999720 is the greatest 6 digit no, divisible by 24, 15, 36.

#Q. 1245 is a factor of the number p and q.

Which of the following will always has 1245 as a factor?

(i) $p + q$ (ii) $p \times q$ (iii) $p \div q$

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A. Only (ii)

B. Only (i) and (ii)

C. Only (iii)

D. All – (i), (ii) and (iii)

#Q. Find the smallest number which leaves remainders 8 amd 12 when divided by 28 and 32 respectively.

28 ÷ ◯ ⟶ R = 8

32 ÷ ◯ ⟶ R = 12

Smallest no. divisible by 28 & 32 is their LCM.

$LCM(28, 32) = \boxed{224}$

$224 - 28 = 196$

$224 - 32 = 192$

$196 + 8 = 204$

$192 + 12 = 204$

Ans.

Real Numbers

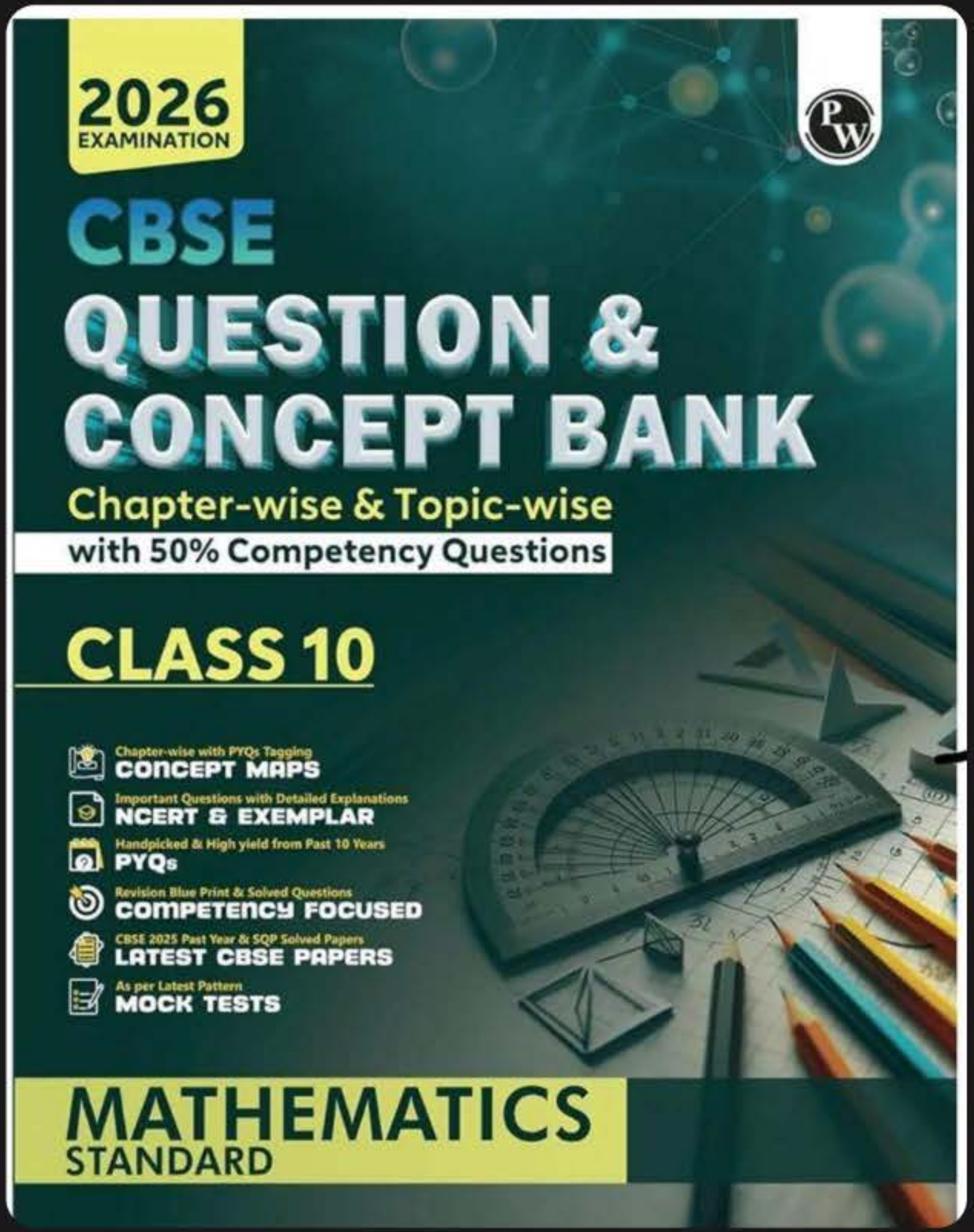
Fundamental Theorem of Arithmetic

H.C.F. and L.C.M. using prime Factorisation Method

Word Problems on HCF and LCM

Relation b/w HCF and LCM for two positive integers

Proof of irrationality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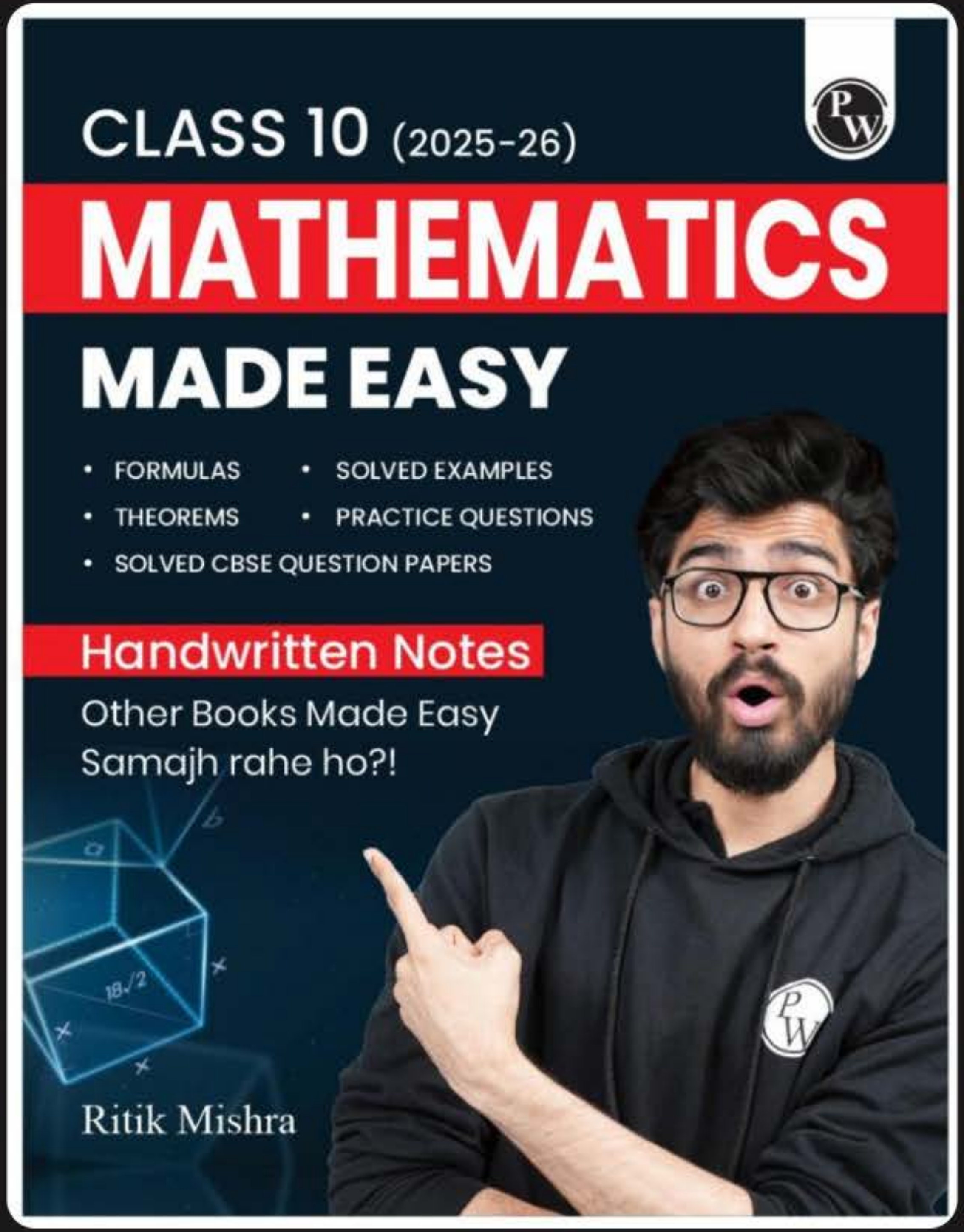
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DREAM BIG
NEVER GIVE UP

Thank You

REAL NUMBERS

S.No.	TYPES OF NUMBERS	DESCRIPTION
1.	NATURAL NUMBERS	N = 1, 2, 3, 4, 5. . . . . . . It is the counting numbers.
2.	WHOLE NUMBERS	W = 0, 1, 2, 3, 4, 5. . . . . It is the counting numbers + ZERO
3.	INTEGERS	Z = −4, −3, −2, −1, 0, 1, 2, 3, 4. . . . .
4.	POSITIVE INTEGERS	Z_+ = 1, 2, 3, 4, 5, 6, ...
5.	NEGATIVE INTEGERS	Z_- = −6, −5, −4, −3, −2, −1
6.	RATIONAL NUMBERS	A number is called rational if it can be expressed in the form p/q where p & q are integers. ($q \neq 0$) EXAMPLE: $\frac{1}{2}$, $\frac{4}{3}$, $\frac{5}{7}$, 1 etc.
7.	IRRATIONAL NUMBERS	A number is called irrational if it cannot be expressed in the form p/q where p & q are integers. ($q \neq 0$) EXAMPLE: $\sqrt{3}$, $\sqrt{2}$, $\sqrt{5}$, π etc.

8. REAL NUMBERS

All rational & all irrational numbers makes the collection of real number. It is denoted by the letter R.

9. H·C·F (a, b) = 1

Then a and b are co primes.

10. FUNDAMENTAL THEOREM OF ARITHMETIC

Composite Number = Product of primes

11. H·C·F and L·C·M by prime factorisation Method.

H·C·F = Product of smallest power of each common factor in the numbers.

L·C·M = Product of the greatest power of each prime factor involved in the number.

12. IMPORTANT FORMULA

$$H\cdot C\cdot F\,(a,b) \times L\cdot C\cdot M\,(a,b) = a \times b$$