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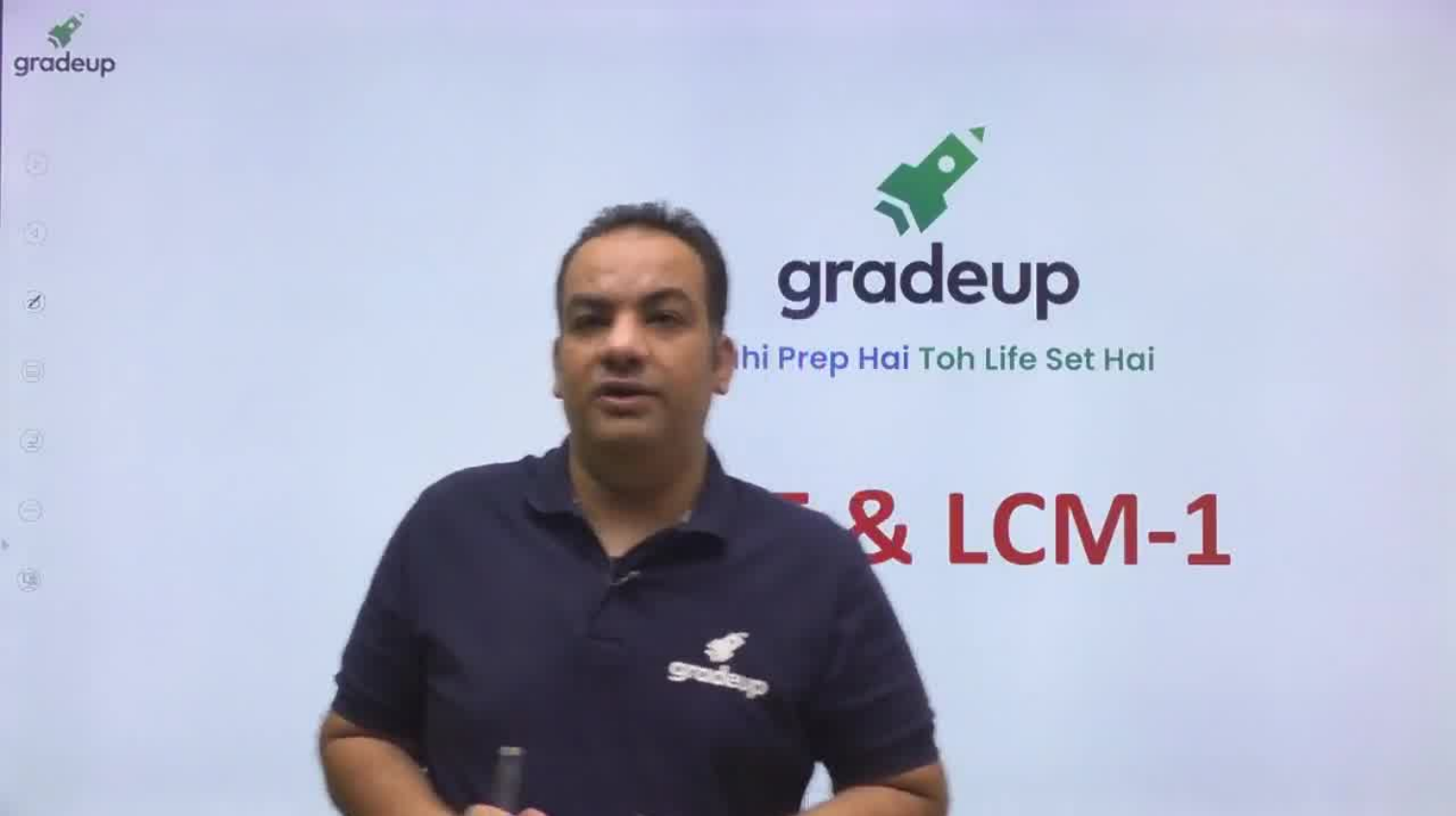
HCF & LCM-1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HCF & LCM-1

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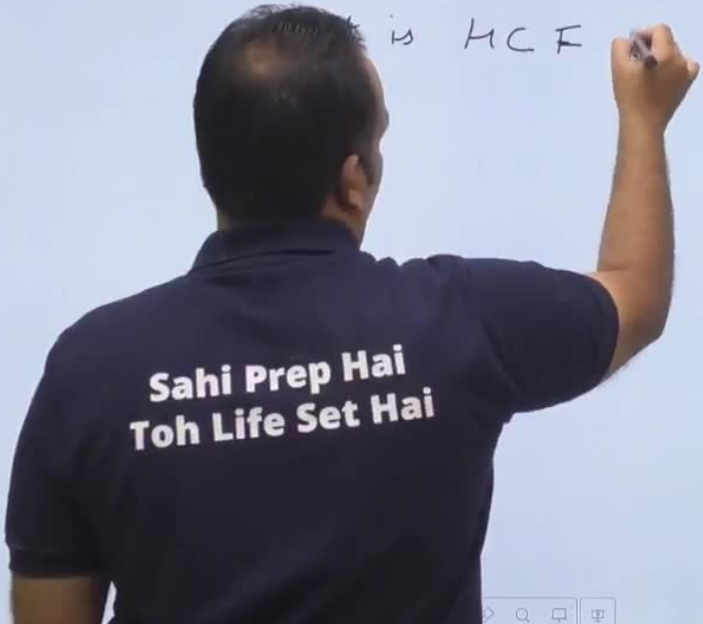
Agenda

is HCF



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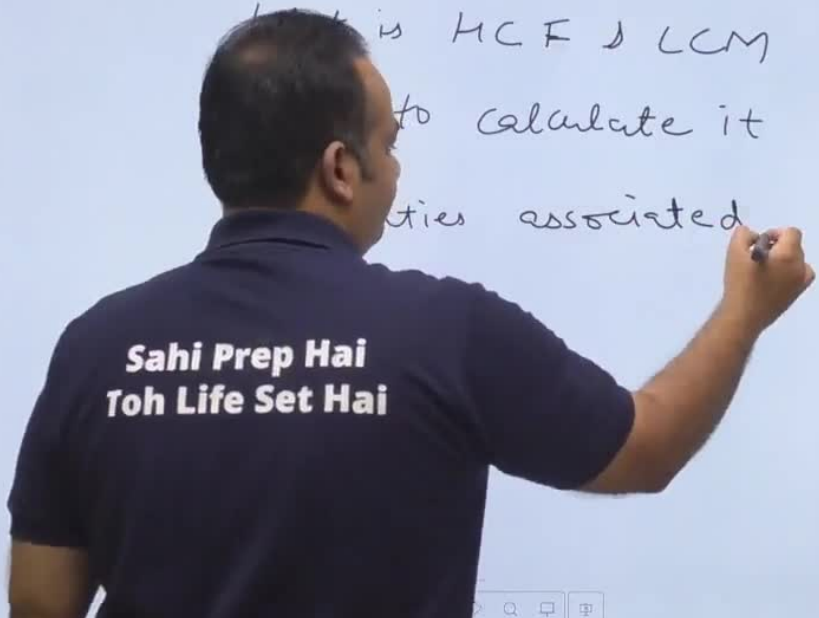
Agenda

is HCF & LCM

to calculate it

ties associated

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HIGHEST COMMON FACTOR (HCF)

- Factors of 12 are 1, 2, 3, 4, 6 & 12
- Factors of 18 are 1, 2, [illegible] 6, 9 & 18
- [illegible]mmon Factors of [illegible] & 18 are 1, 2, 3, & 6
- [illegible]ghest common f[illegible]ors of 12 & 18 is 6
- [illegible]CF of two or [illegible] than two numbers is the greatest [illegible]es each of them exactly.

[illegible]CF of two or more than two numbers is always less [illegible]equal to the lowest number .

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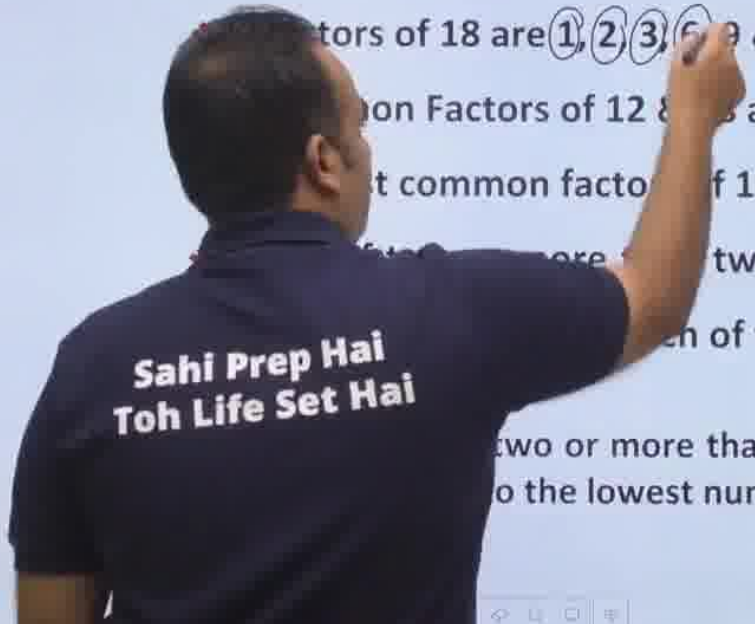
- t common factor of 12 & 18 is 6
- two numbers is the greatest
- h of them exactly.
- two or more than two numbers is always less
- o the lowest number .



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- Factors of 12 are 1, 2, 3, 4, 6 & 12
- Factors of 18 are 1, 2, 3, 6, 9 & 18
- Common factors of 12 & 18 are 1, 2, 3, & 6
- Highest common factors of 12 & 18 is 6

HCF of two or more than two numbers is the greatest number that divides each of them exactly.

Note : HCF of two or more than two numbers is always less than or equal to the lowest number .

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HIGHEST COMMON FACTOR (HCF)

HCF of N_1 & N_2 is H

$N_1 = Hx$

$N_2 = Hy$

x & y are co-prime

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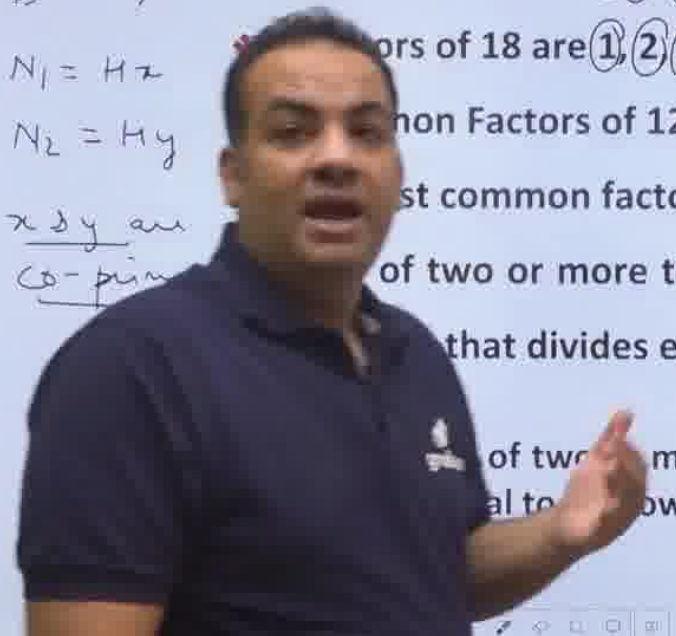

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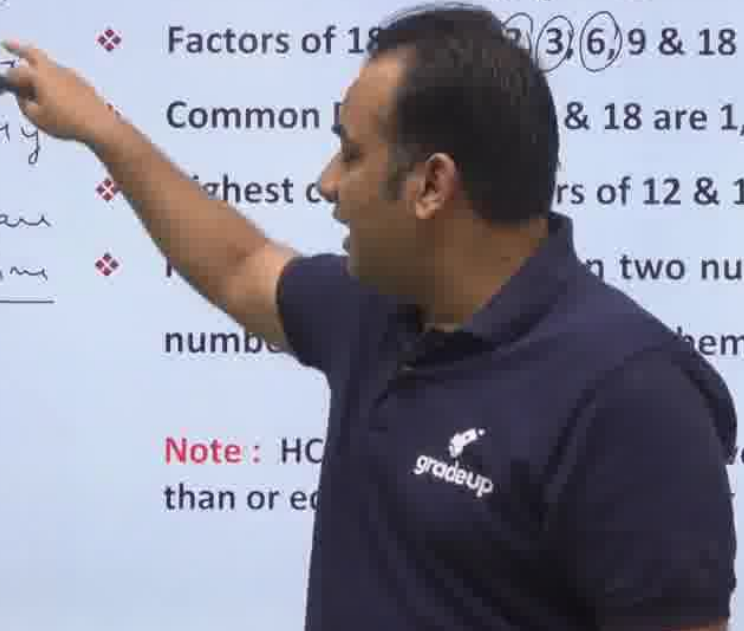
Note : HC[illegible]o numbers is always less than or eq[illegible].



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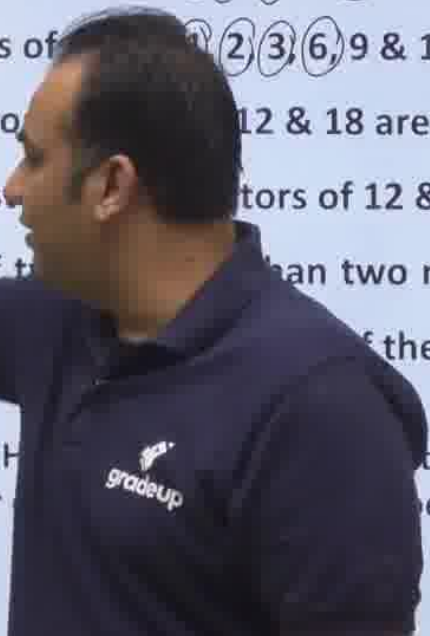
- HCF of two or more than two numbers is the greatest number that divides them exactly.

Note : HCF of two numbers is always less than or equal to the smaller number.



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HCF ...

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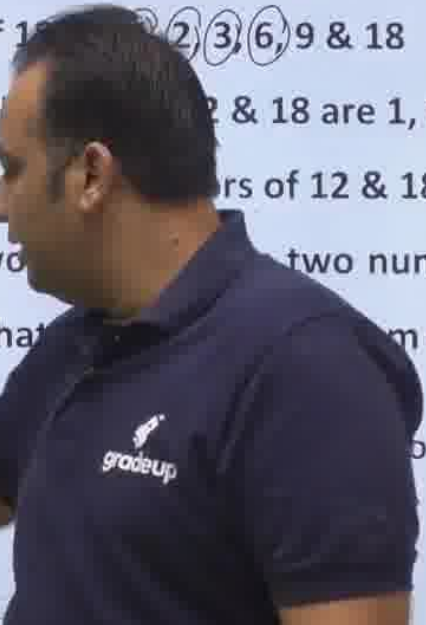

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HCF =

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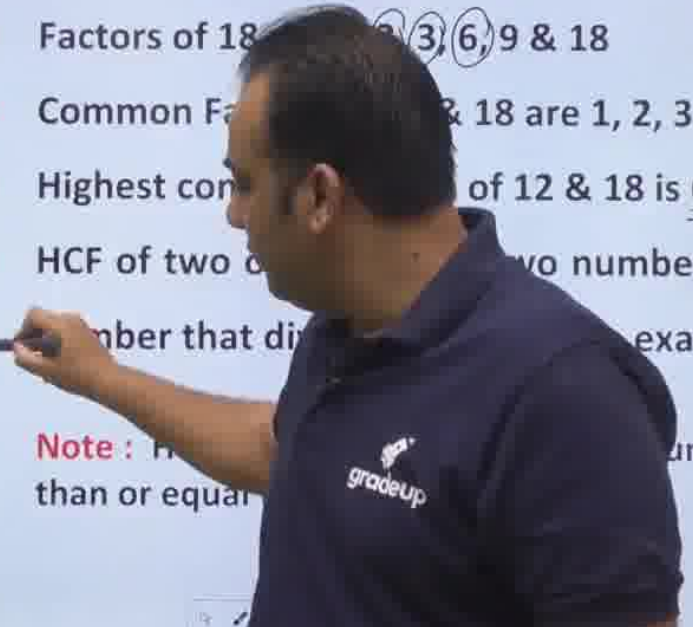
- Common Factors of 12 & 18 are 1, 2, 3, & 6
- Highest common factor of 12 & 18 is 6
- HCF of two or more numbers is the greatest number that divides them exactly.

Note : HCF of two numbers is always less than or equal



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HIGHEST COMMON FACTOR (HCF)

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x & y are Co-prime

HCF = 1

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- Common Factors of 12 & 18 are 1, 2, 3, & 6
- Highest common factors of 12 & 18 is 6
- HCF of two or more than two numbers is the greatest number that divides

Note : HCF of two numbers is always less than or equal to the

12 = 6 ×

18 = 6 ×

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12 = 6 × 2

18 = 6 × 3

...two or more than two numbers is the greatest ...ber that divides each of them exactly.

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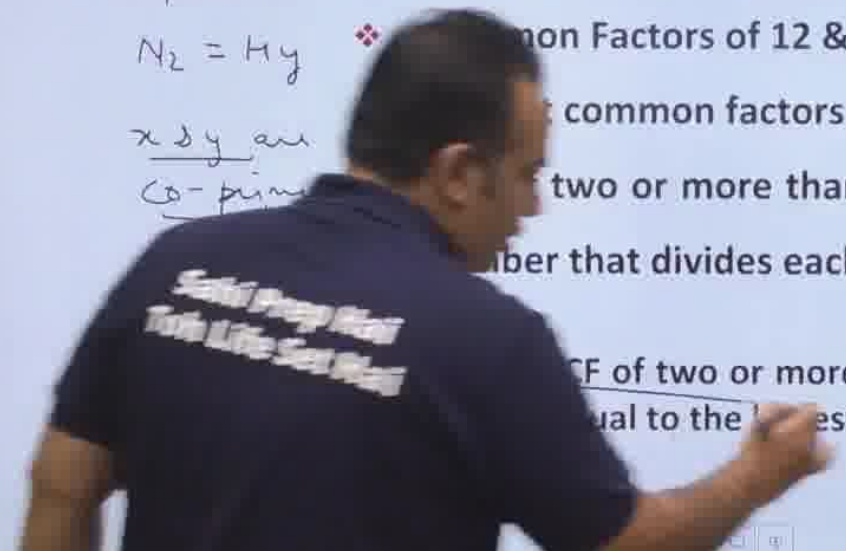

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N_2 =

$\times$

G

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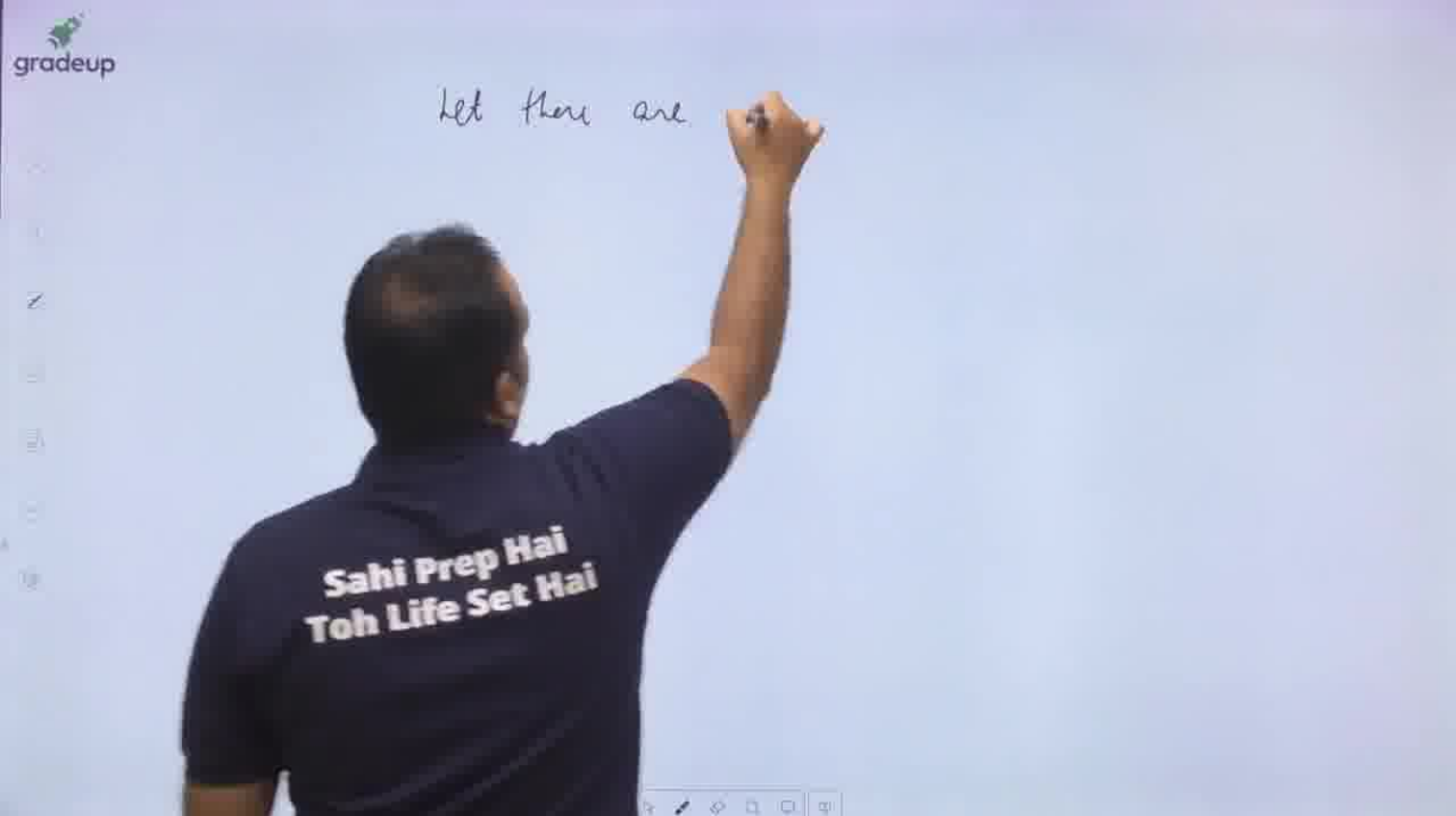
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Let there are
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Let there are Numbers

$N_1 < N_2$

Let there are Numbers

$N_1 \leq N_2 \leq N_3 \leq N_4 \ldots\ldots$

$HCF \leq N_1$

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Methods to find HCF of given set of numbers

I. Factorization Method

Express each one of the given numbers as the product of prime factors. The product of least power of common prime factors given HCF.

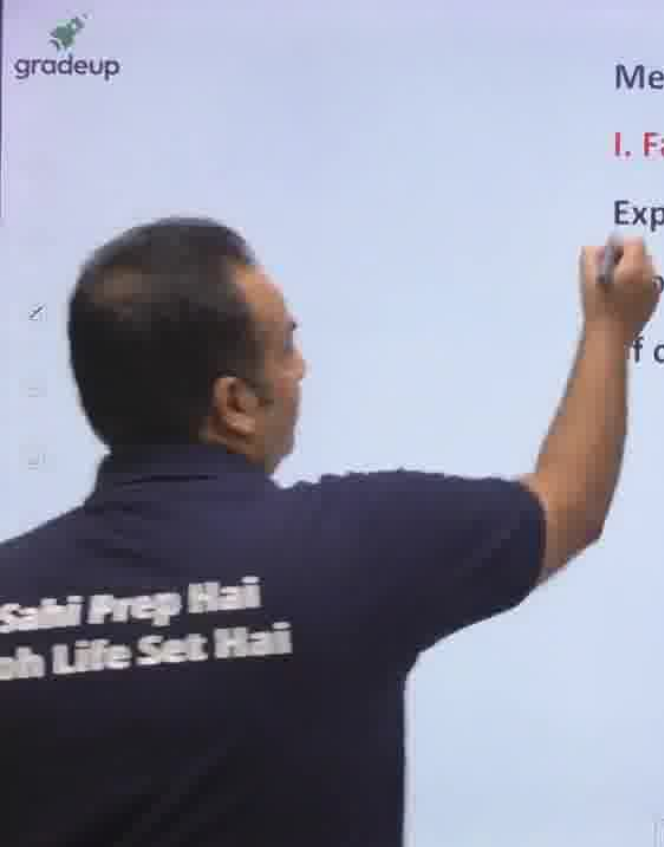
Eg.1 Find HCF of 120 & 162

$120 = 2^3 3^1 5^1$

$162 = 2^1 3^4$

$HCF = 2^1 3^1$

$= 6$



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

2 | 162
3 | 81
3 | ...
3 | ...
3 | ...

Eg.1 Find HCF of 120 & 162

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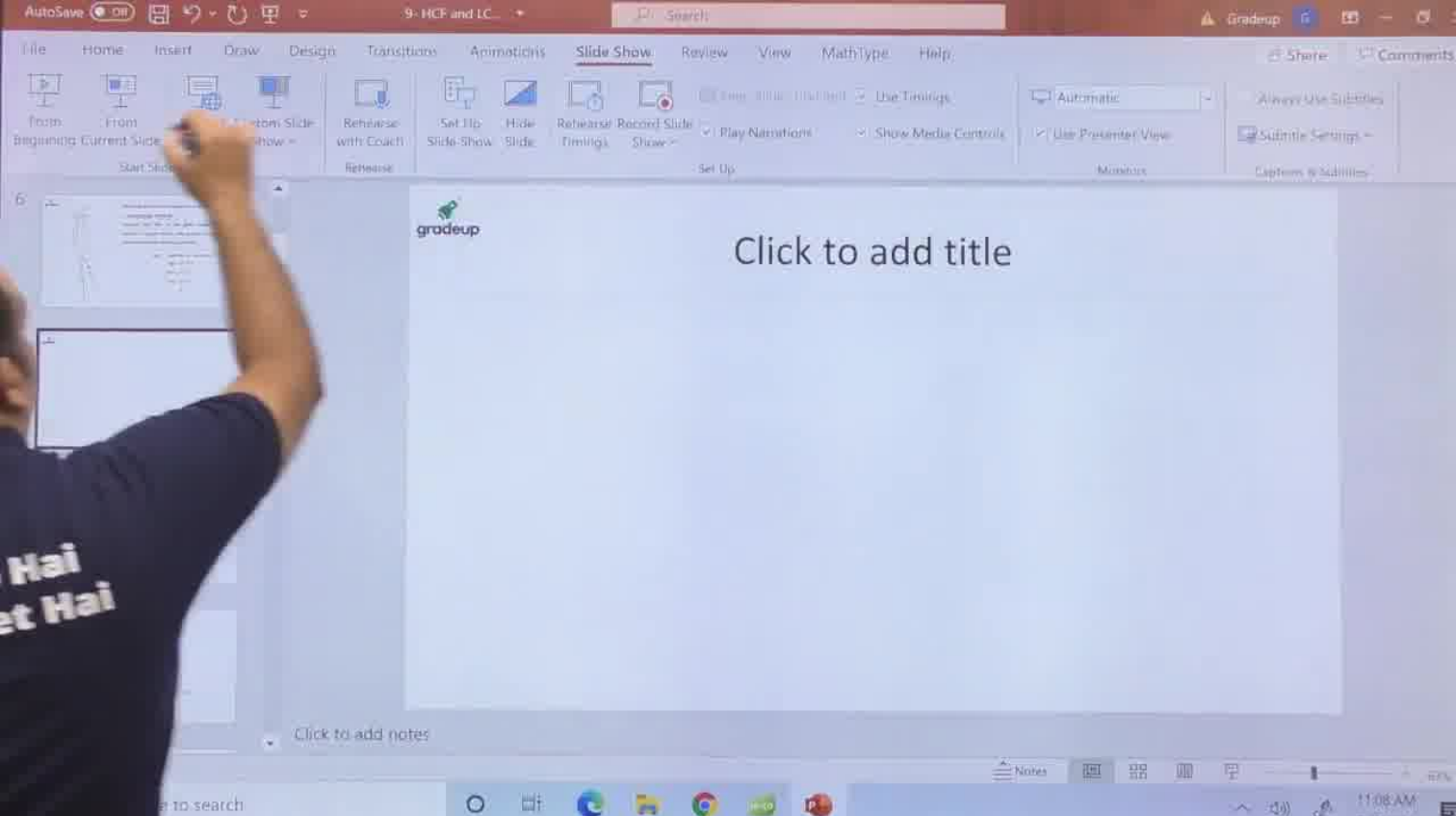
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View
MathType
Help
Share
Comments
From Beginning
From Current Slide
Rehearse with Coach
Set Up Slide Show
Hide Slide
Rehearse Timings
Record Slide Show
Use Timings
Play Narrations
Show Media Controls
Automatic
Use Presenter View
Always Use Subtitles
Subtitle Settings
Start Slide Show
Rehearse
Set Up
Monitors
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Eg HCF of 3

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Eg HCF of 360 s

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Eg HCF of 360 &

Eg HCF of 360 & 468

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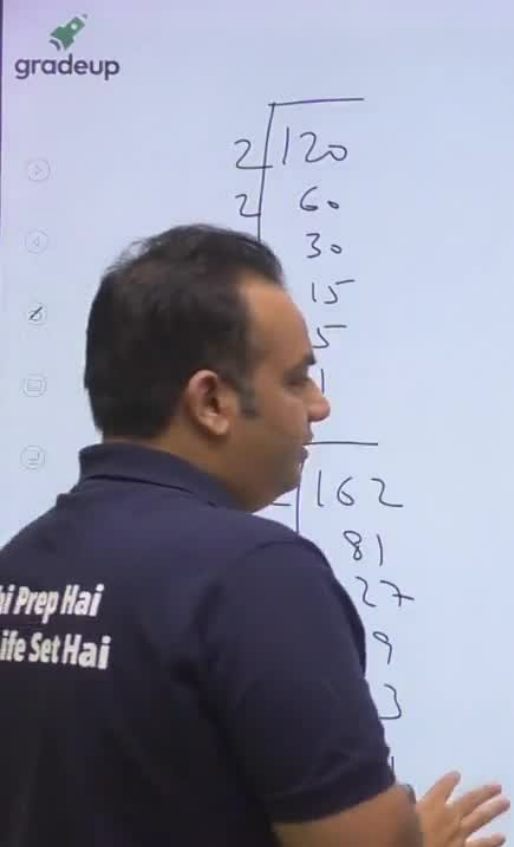

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[illegible] $= 2^1\ 3^1$

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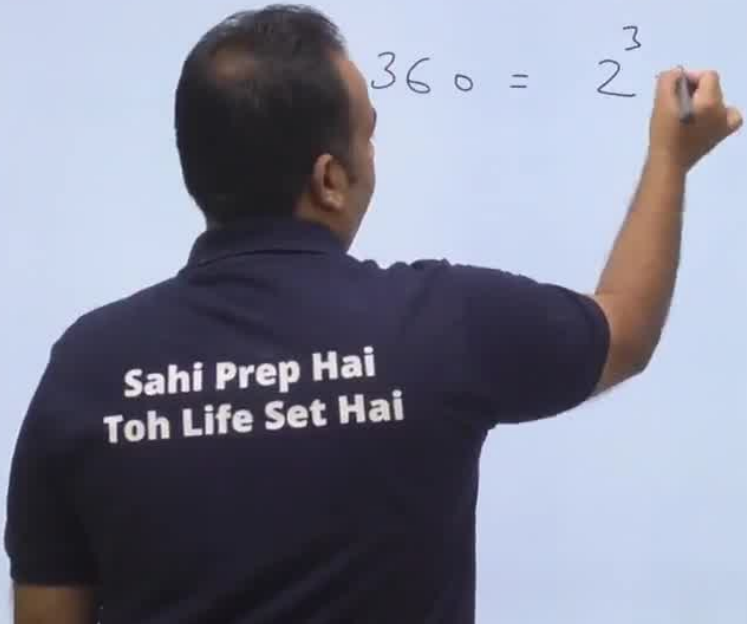
$120 = 2^3\ 3^1\ 5^1$

$162 = 2^1\ 3^4$

$HCF = 2^1\ 3^1$

Eg HCF of 360 & 468

$360 = 2^3$



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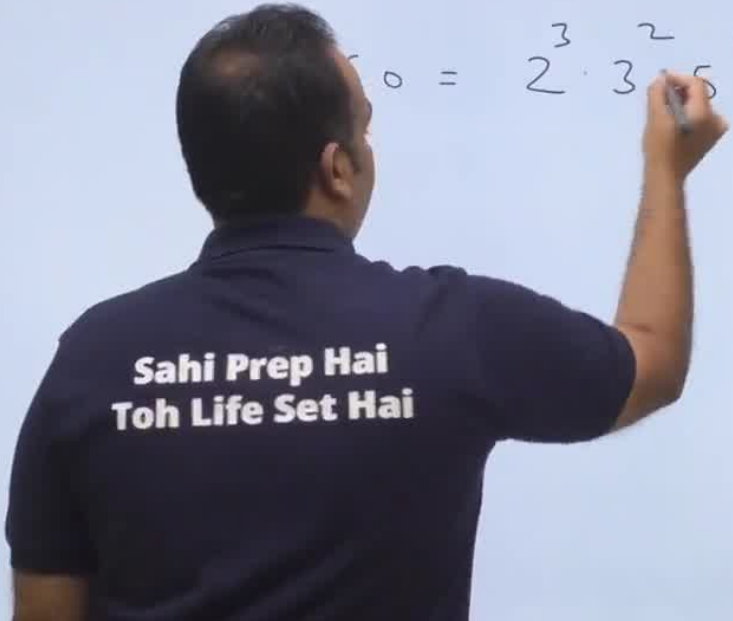
Eg HCF of 360 & 468

$360 = 2^3 \cdot 3^2 \cdot 5^1$



Eg HCF of 360 & 468

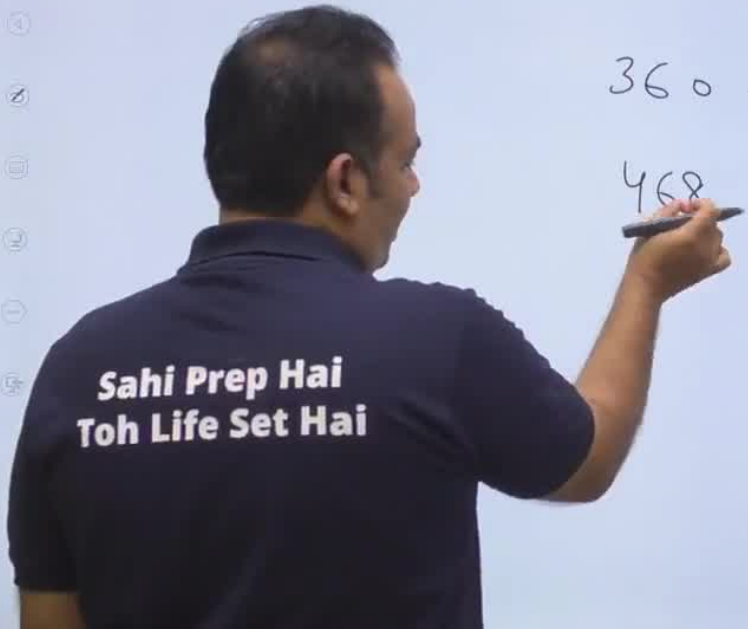
$360 = 2^3 \cdot 3^2 \cdot 5^1$

$468 = 2$

Eg HCF of 360 & 468

$360 = 2^3 \cdot 3^2 \cdot 5^1$

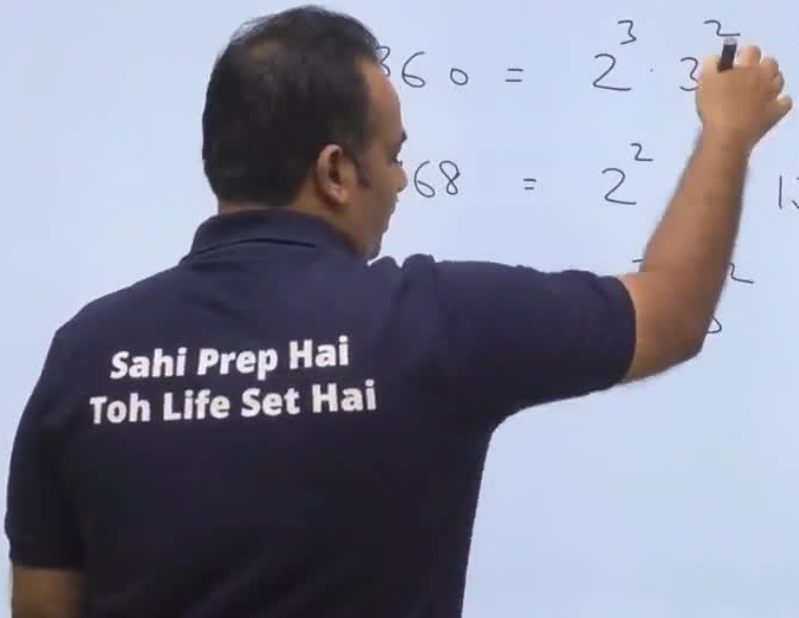
$468 = 2^2$



Eg HCF of 360 & 468

360 = $2^3 \cdot 3^2 \cdot 5^1$

468 = 2^2 ... 13^1

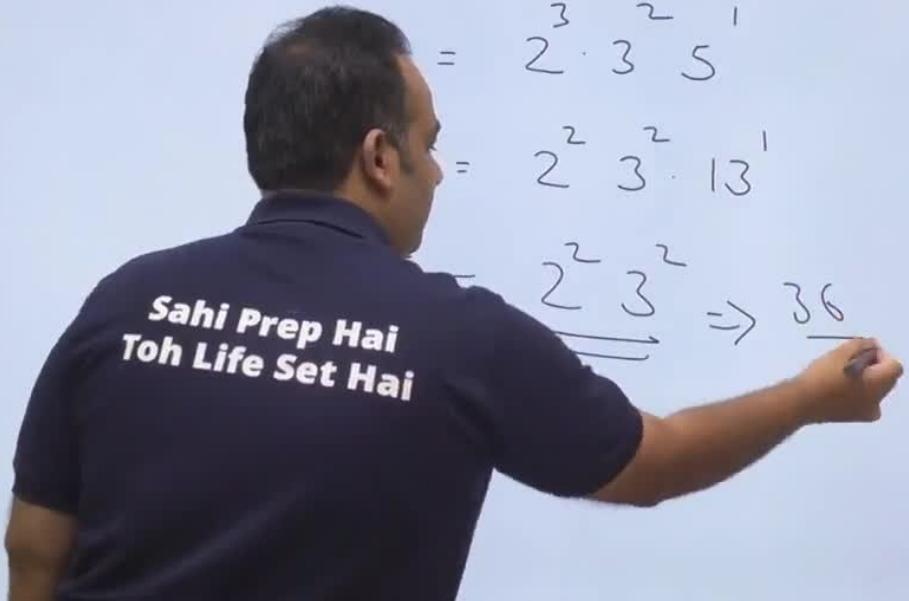


Eg HCF of 360 & 468

$= 2^3 \cdot 3^2 5^1$

$= 2^2 3^2 13^1$

$= 2^2 3^2 \Rightarrow 36$



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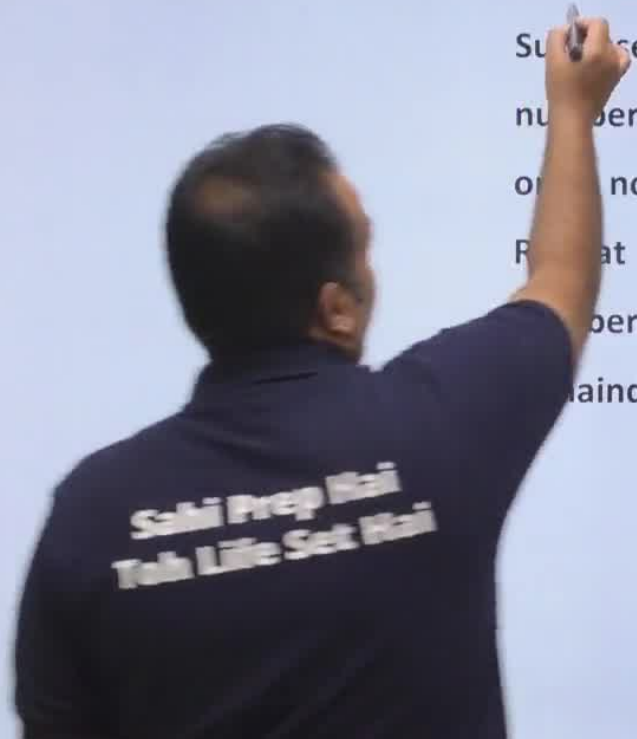
II. Division Method

Su[illegible]ce we have to find the HCF of two given nu[illegible]bers. Divide the larger number by the smaller o[illegible] now divide the divisor by the remainder. R[illegible]at the process of dividing the preceding [illegible]ber by the remainder till zero is obtained as the [illegible]ainder. The last divisor is the required HCF.



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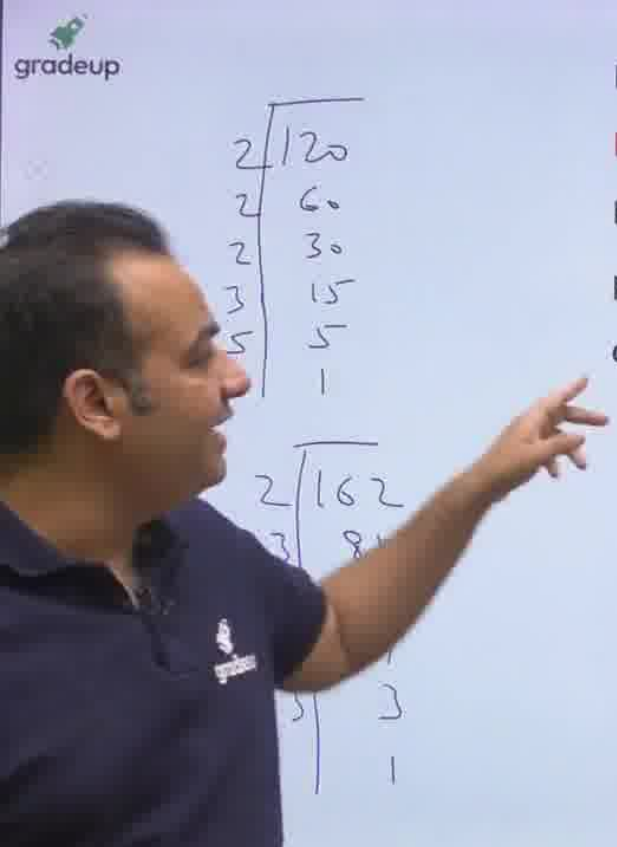

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$162 = 2^1\ 3^4$

$HCF = 2^1\ 3^1$

$= 6$

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Eg2. Find HCF of 120 and 162.

$$
\begin{array}{l}
120\overline{)162(1} \\
\underline{120} \\
42\overline{)120(2} \\
\underline{84} \\
36\overline{)42(1} \\
\underline{36} \\
6\overline{)36(6} \\
\underline{36} \\
0
\end{array}
$$

So the last divisor is 6 is the HCF.

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Eg. While calculating HCF of 2 numbers by division method, we get 5, 8 & 2 as the respective quotients and the last divisor is 6.
Find the numbers.

Quotients
5, 8, 2

Last divisor
(HCF)

Let

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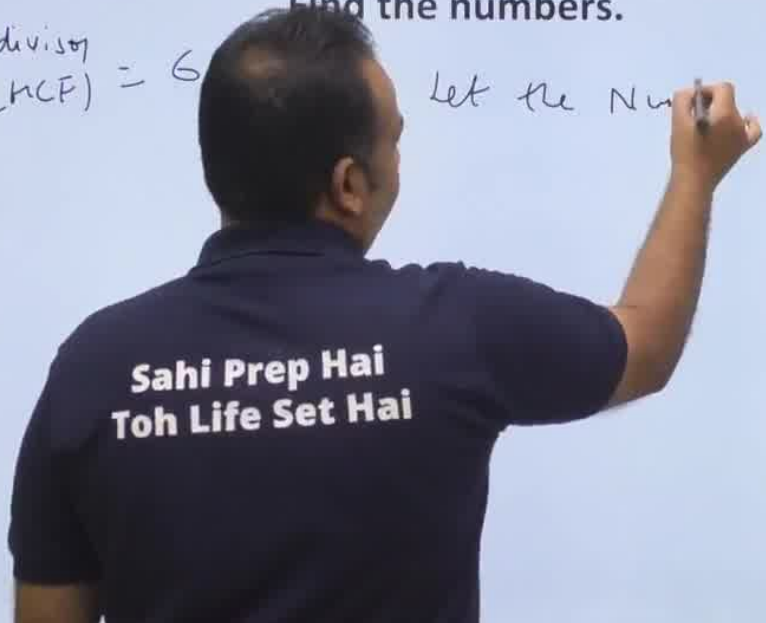

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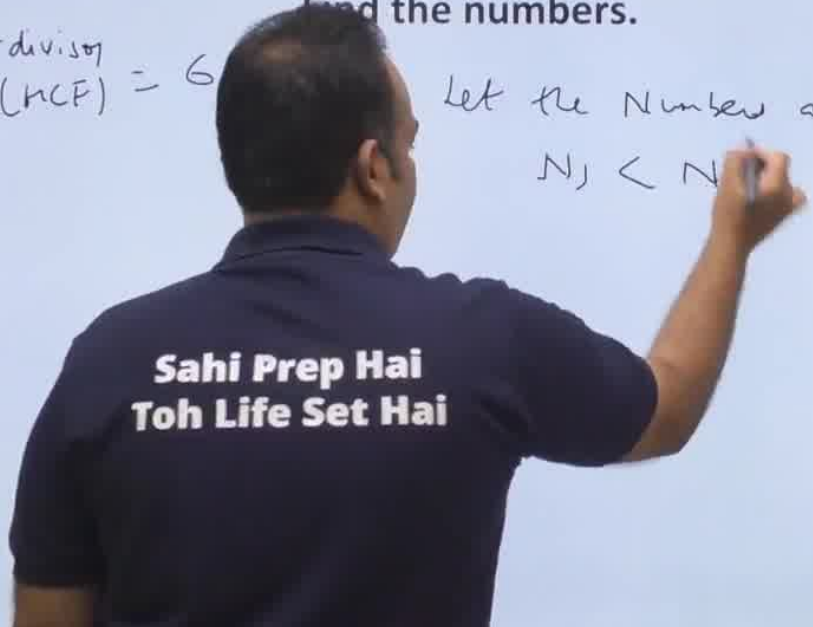
Let the Numbers are N_1 & N_2
$N_1 < N$



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$N_1 < N_2$

N_1 | N_2 | 5

R_1 | N_1

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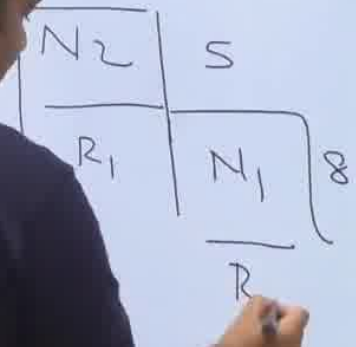

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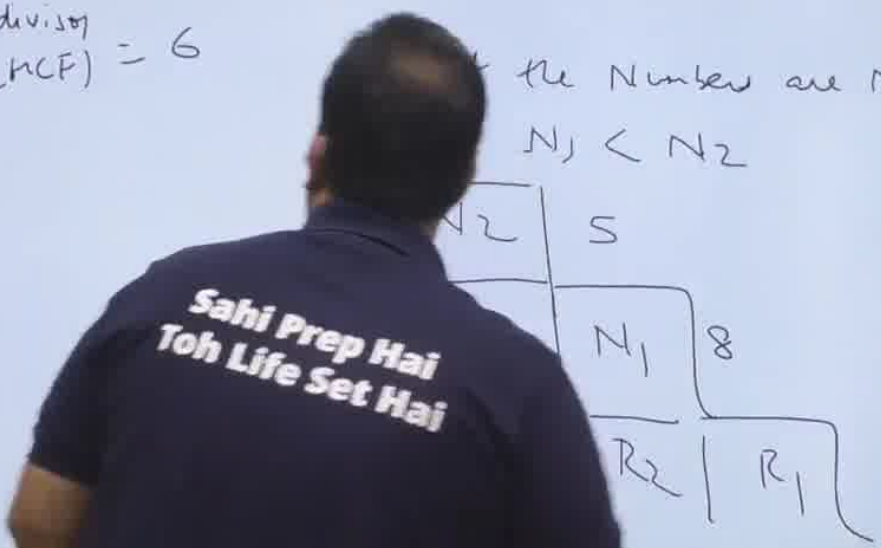

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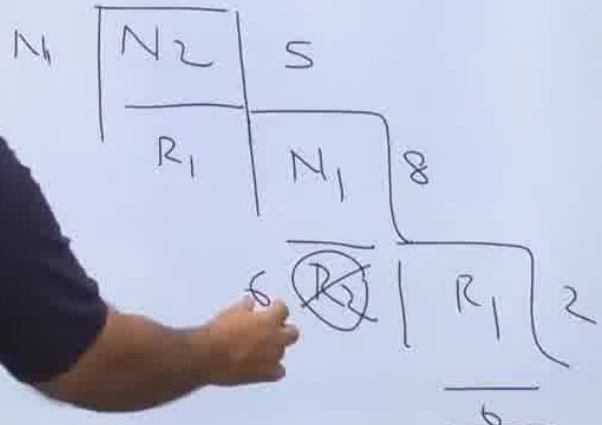
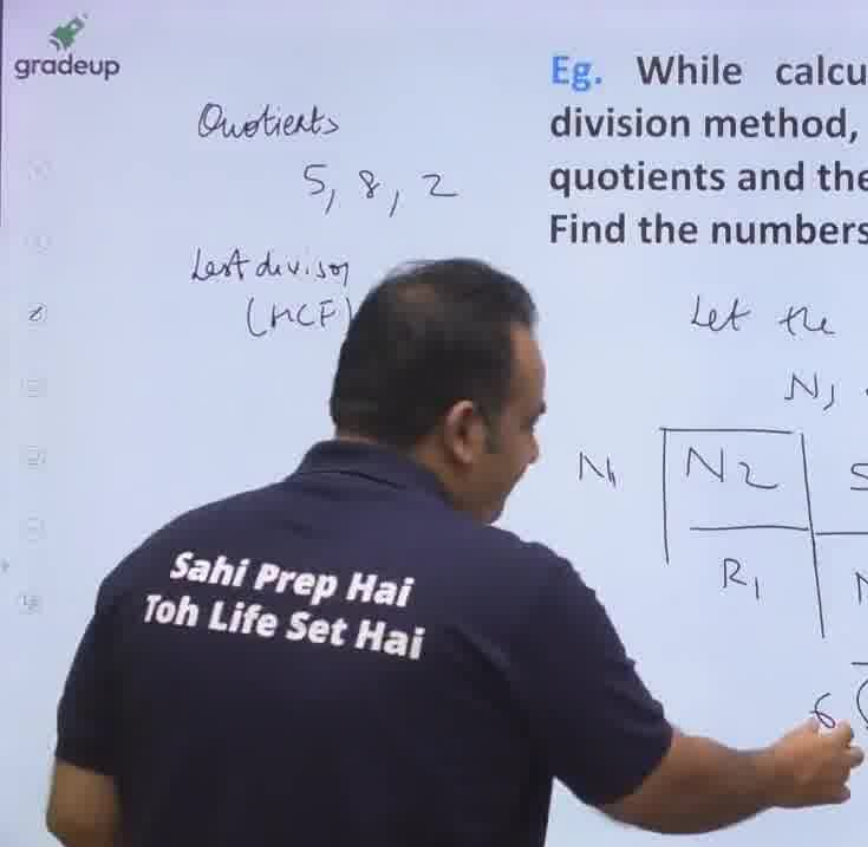
Last divisor
(HCF)

Let the Numbers are N_1 & N_2

$N_1 < N_2$



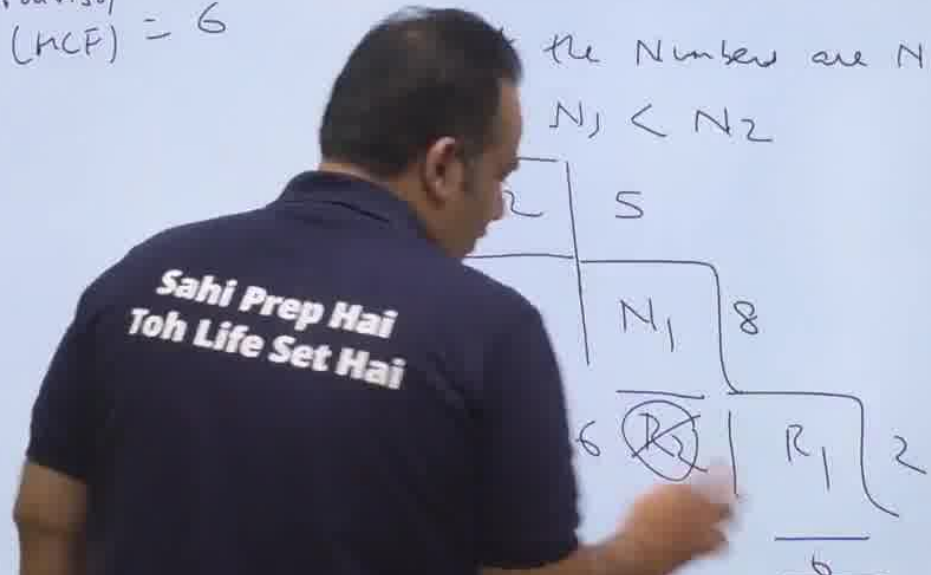


gradeup

Eg. While calculating HCF of 2 numbers by division method, we get 5, 8 & 2 as the respective quotients and the last divisor is 6.
Find the numbers.

Quotients
5, 8, 2

Last divisor (HCF) = 6



the Numbers are N_1 & N_2

$N_1 < N_2$

2 | 5

N_1 | 8

6 | R_1 | 2

6

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Find the numbers.

Quotients
5, 8, 2

Last div. sor
(HCF) = 6

Let the Numbers are N_1 & N_2

$N_1 < N_2$

522

N_2 | 5

12 R_1 | 102 N_1 | 8

6 R_2 | 12 R_1 | 2

102 & 5

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eg Quotients cr

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eg Quotients are 4, 7, 5

Last divisor

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eg Quotients are 4, 7, 5

Last division = 8

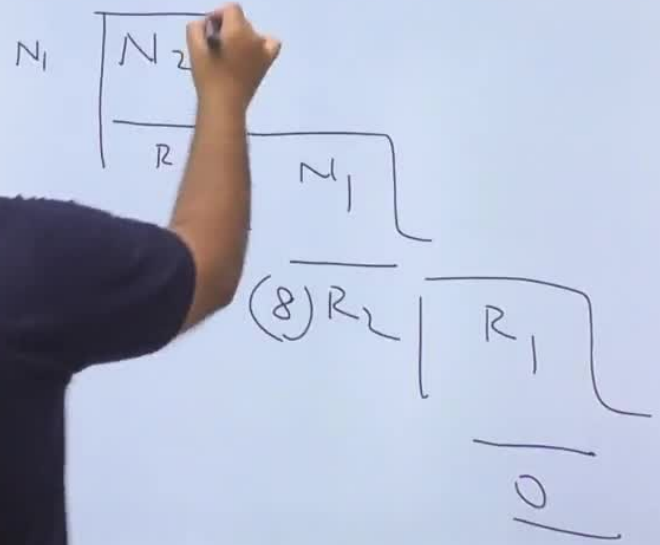
Find the Numbers

$N_1 \overline{)N_2}$

eg Quotients are 4, 7, 5

Last division = 8

Find the Num



gradeup

eg

Quotients are 4, 7, 5

Last divisor = 8

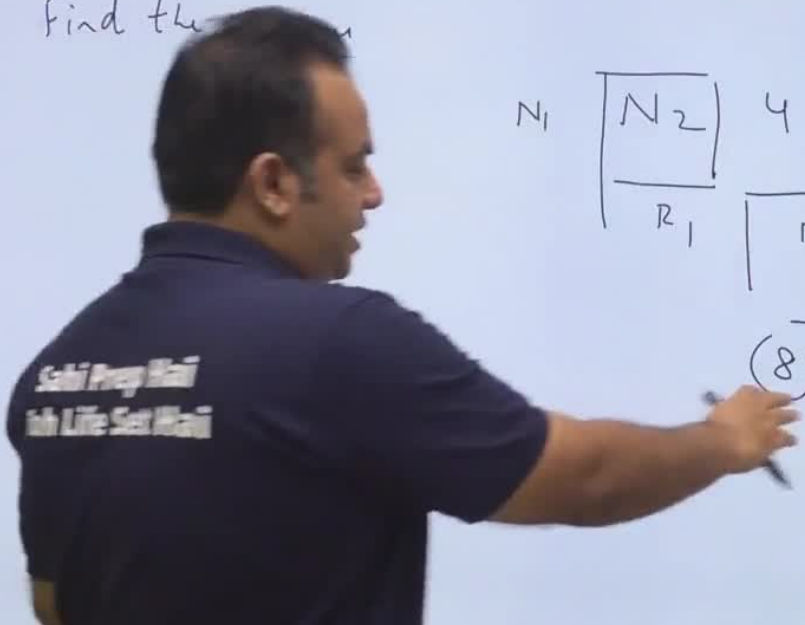
Find the

N_1 | N_2 | 4

R_1 | N_1 | 7

8 R_2 | R_1 | 5

0



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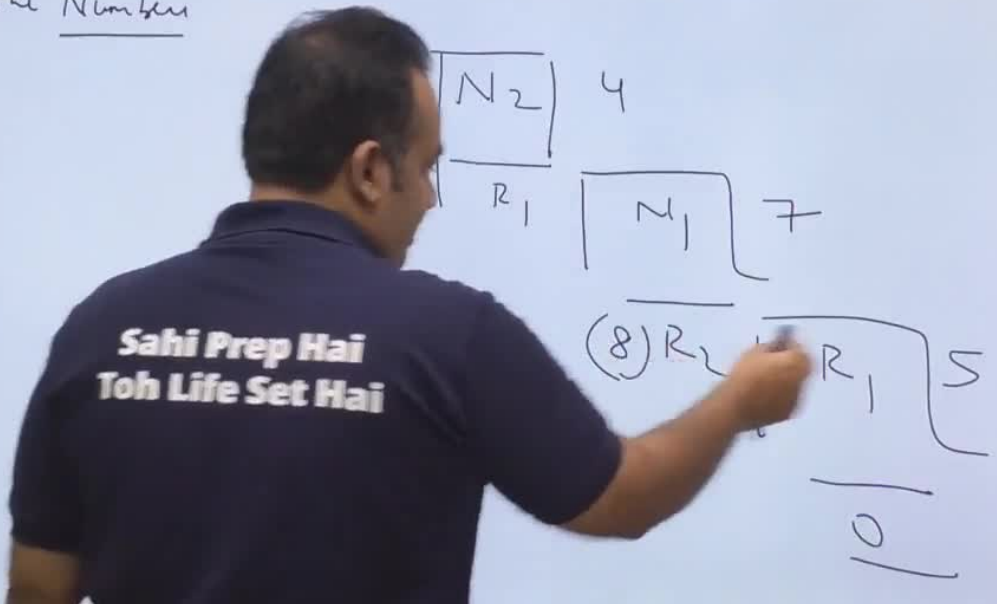
Last division = 8

Find the Number



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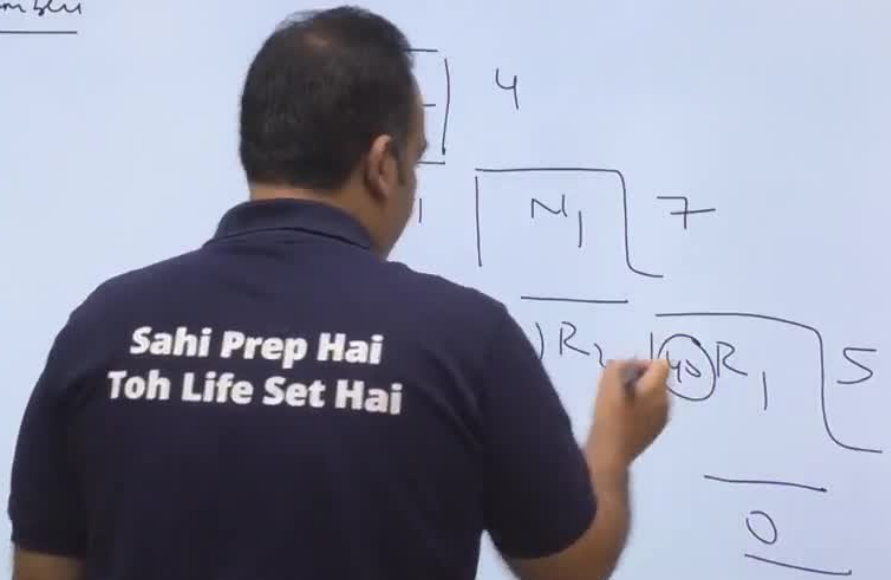

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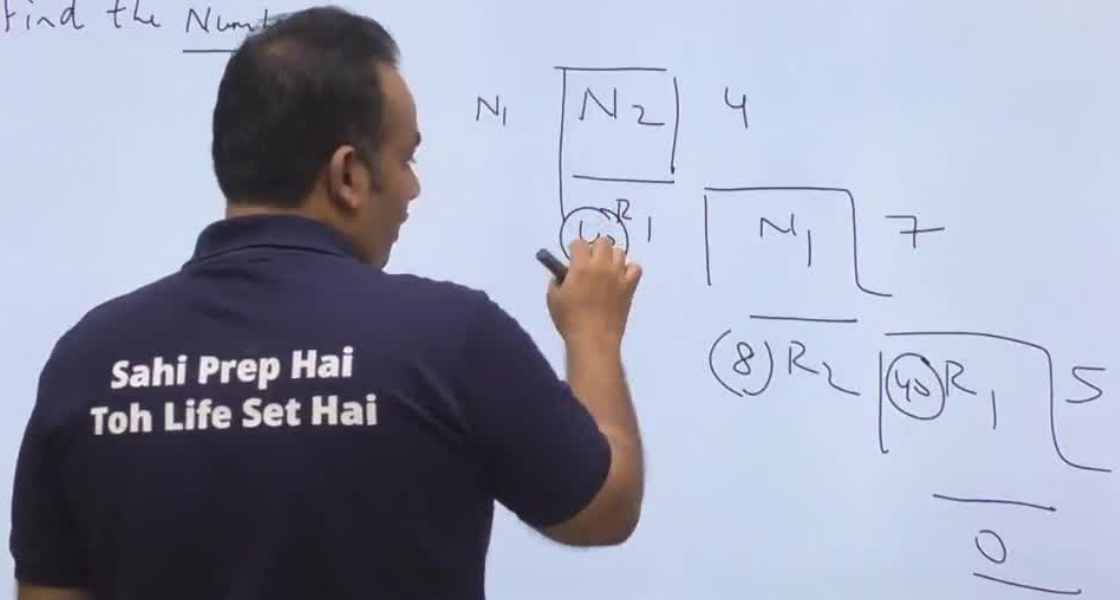
eg Quotients are 4, 7, 5

Last division = 8

Find the Numb



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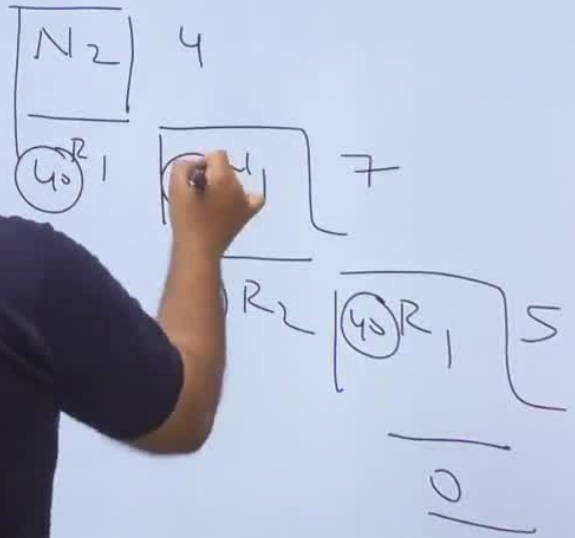
Last divisor = 8

Find the Number



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Toh Life Set Hai

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eg

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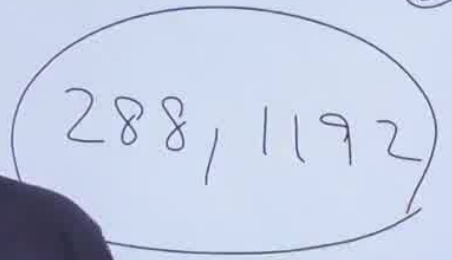
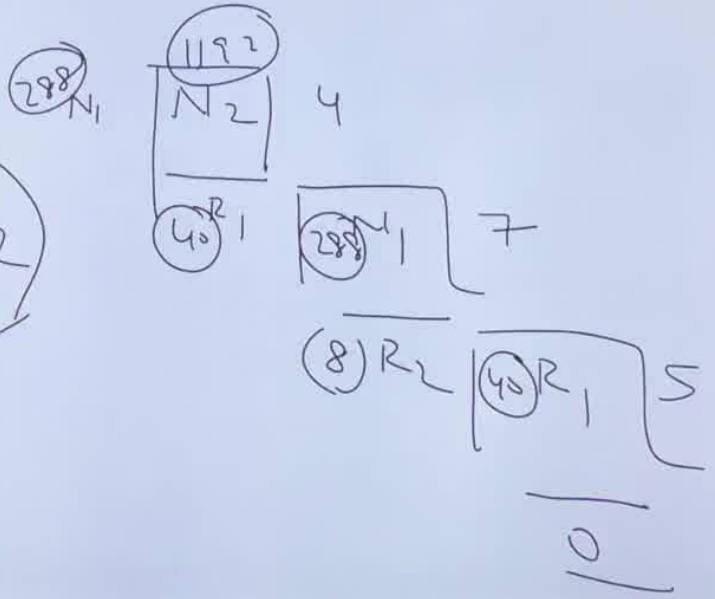
Last division = 8

Find the Numbers





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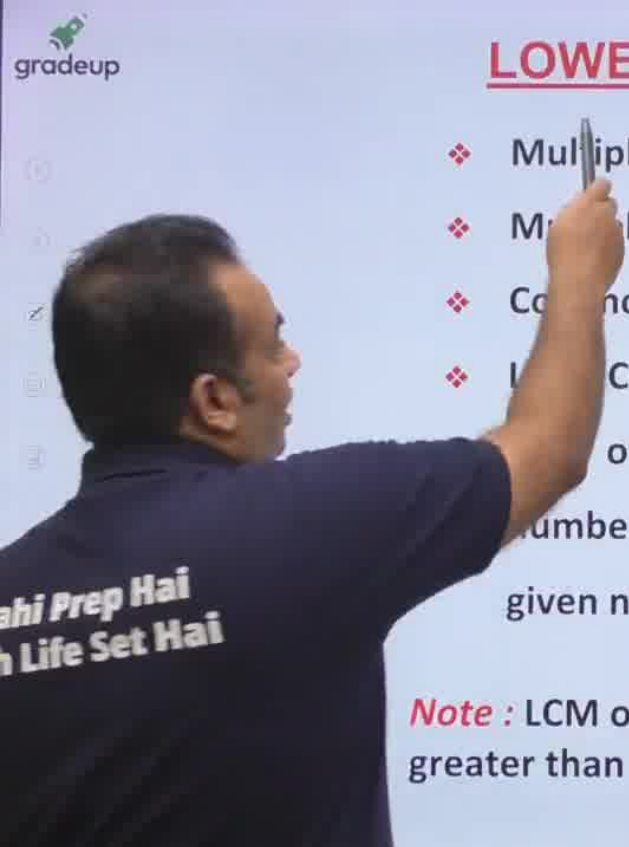
LOWEST COMMON MULTIPLE (L.C.M.)

- Multiples of 12 are 12, 24, 36 , 48, 60, 72 , ...
- Multiples of 18 are 18, 36 , 54, 72 , 90, ...
- Common Multiples of 12 & 18 are 36, 72, 108, ...
- Least Common Multiple of 12 & 18 is 36

of two or more than 2 numbers is the least number which is exactly divisible by each one of the given number is called LCM.

Note : LCM of two or more than two numbers is always greater than or equal to the greatest number.



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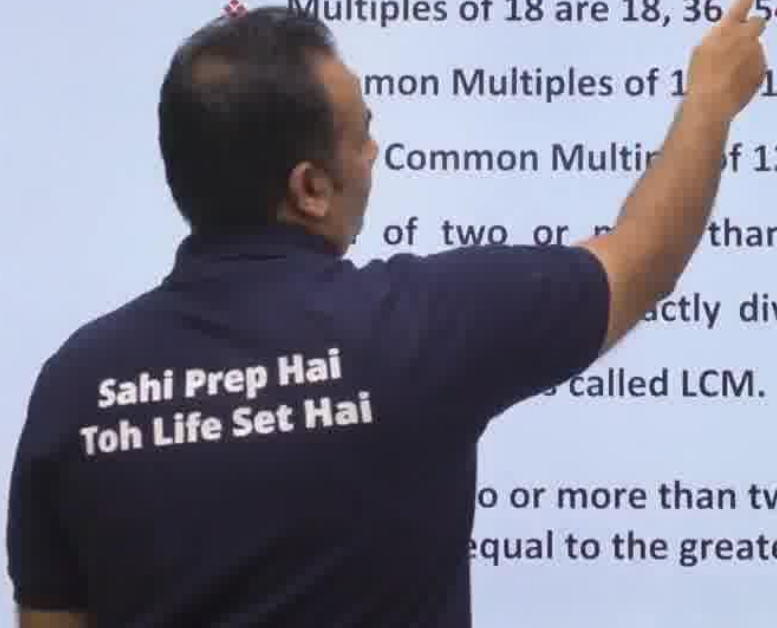

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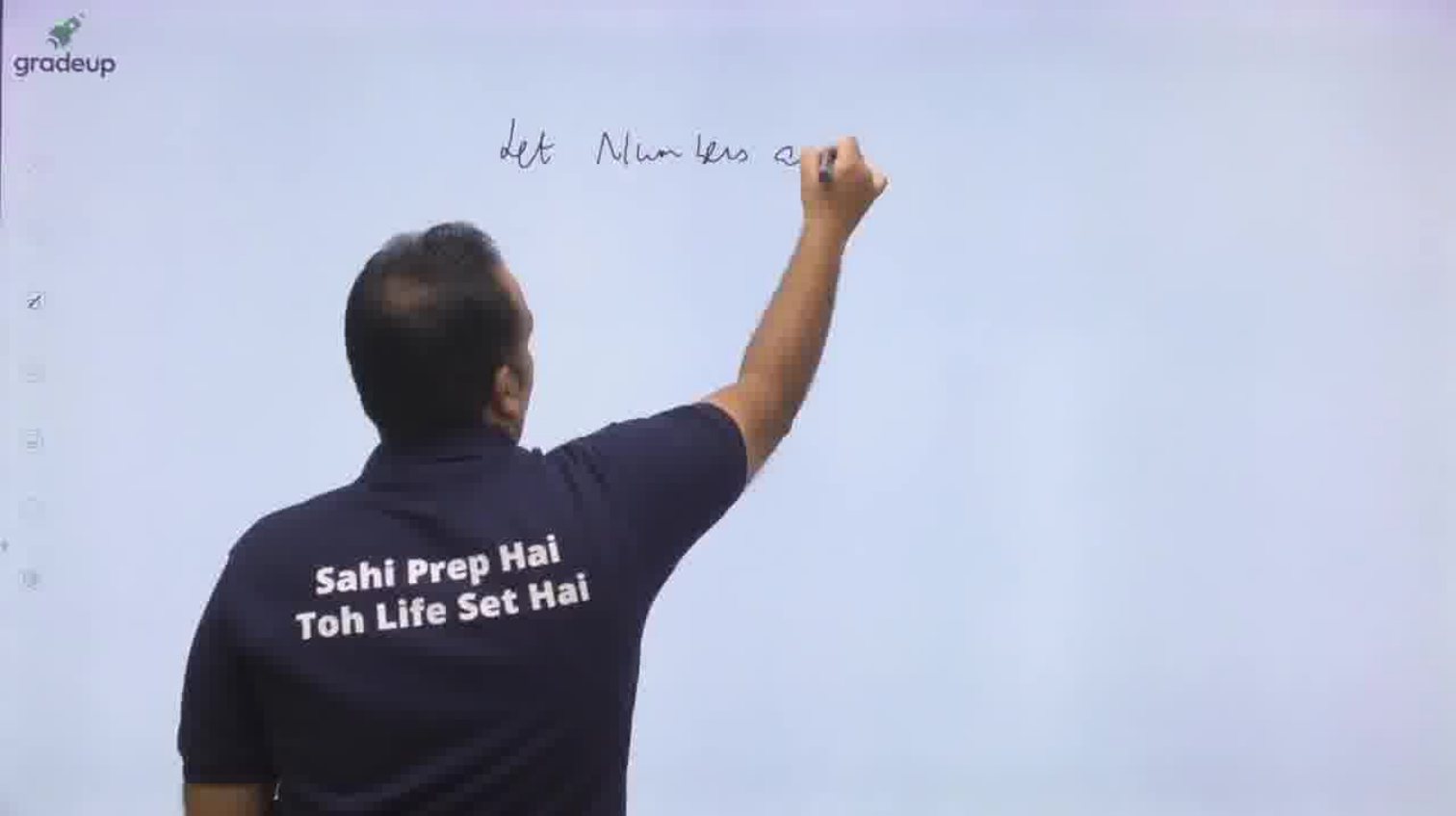
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Let Numbers a
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Let Numbers are

$N_1, N_2, N_3, - - - -$

$N_1 \geq N_2 > N_3$

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Methods to find LCM of given Set of Numbers

I. Factorization Method

Resolve each one of the given numbers into a product of prime factors. Then LCM is the product of highest powers of all the factors.

Ex: Find LCM of 120 & 162

$120 = 2^3 \times 3^1 \times 5^1$

$162 = 2^1 \times 3^4$

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

$= 8 \times 81 \times 5$

$= 3240$

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Methods to find LCM of given Set of Numbers

I. Factorization Method

ach one of the given numbers into a product of
ors. Then LCM is the product of highest powers of
ors.

d LCM of 120 & 162

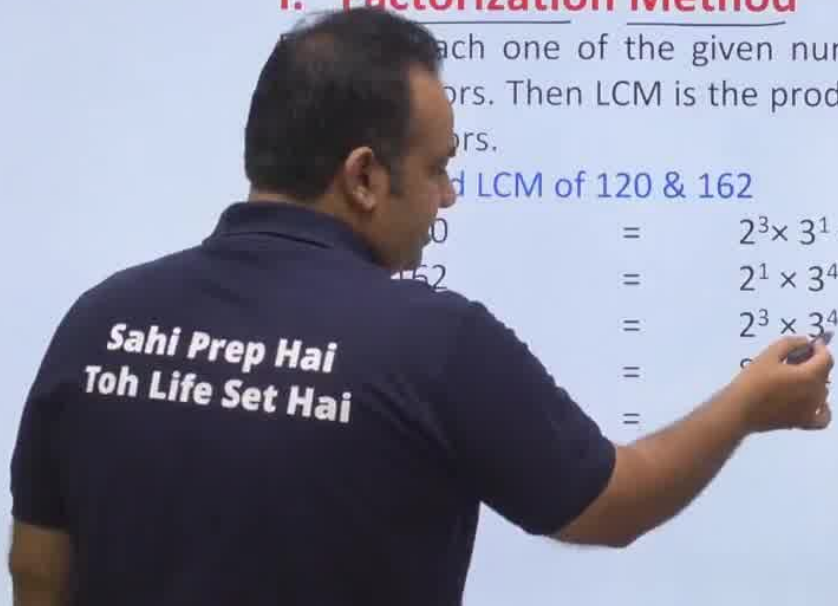
0 = $2^3 \times 3^1 \times 5^1$

62 = $2^1 \times 3^4$

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

= × 5

=



gradeup

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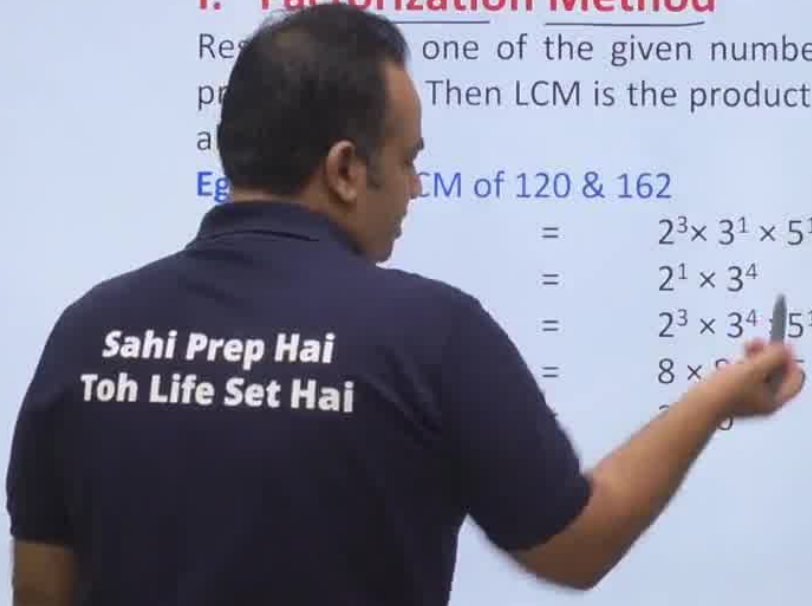
$= 8 \times$



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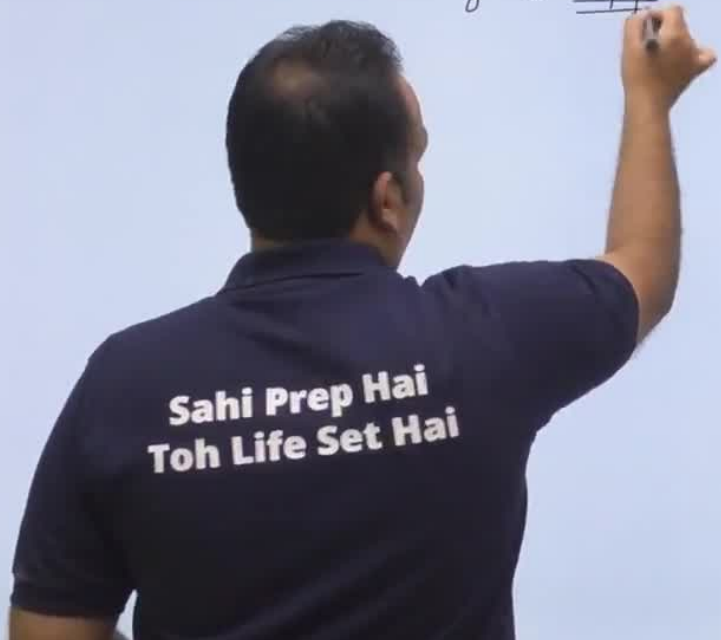
Today (App)



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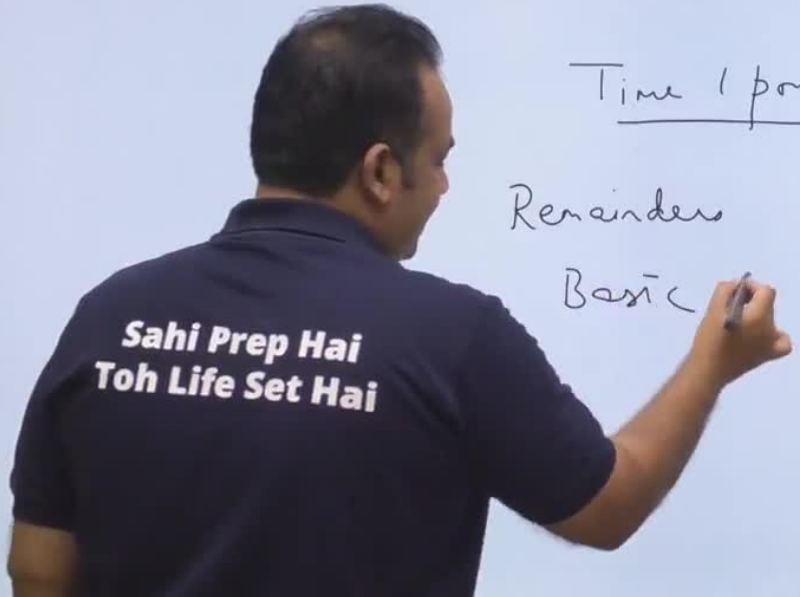
Today (App)

Time 1 pm

Reminder

Basic



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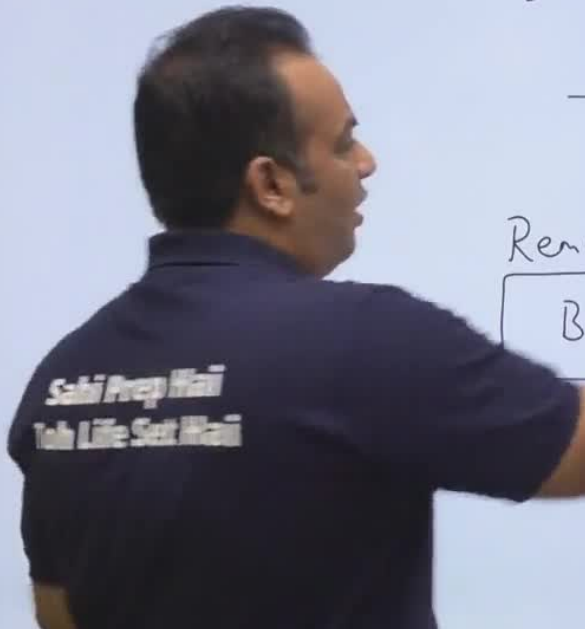
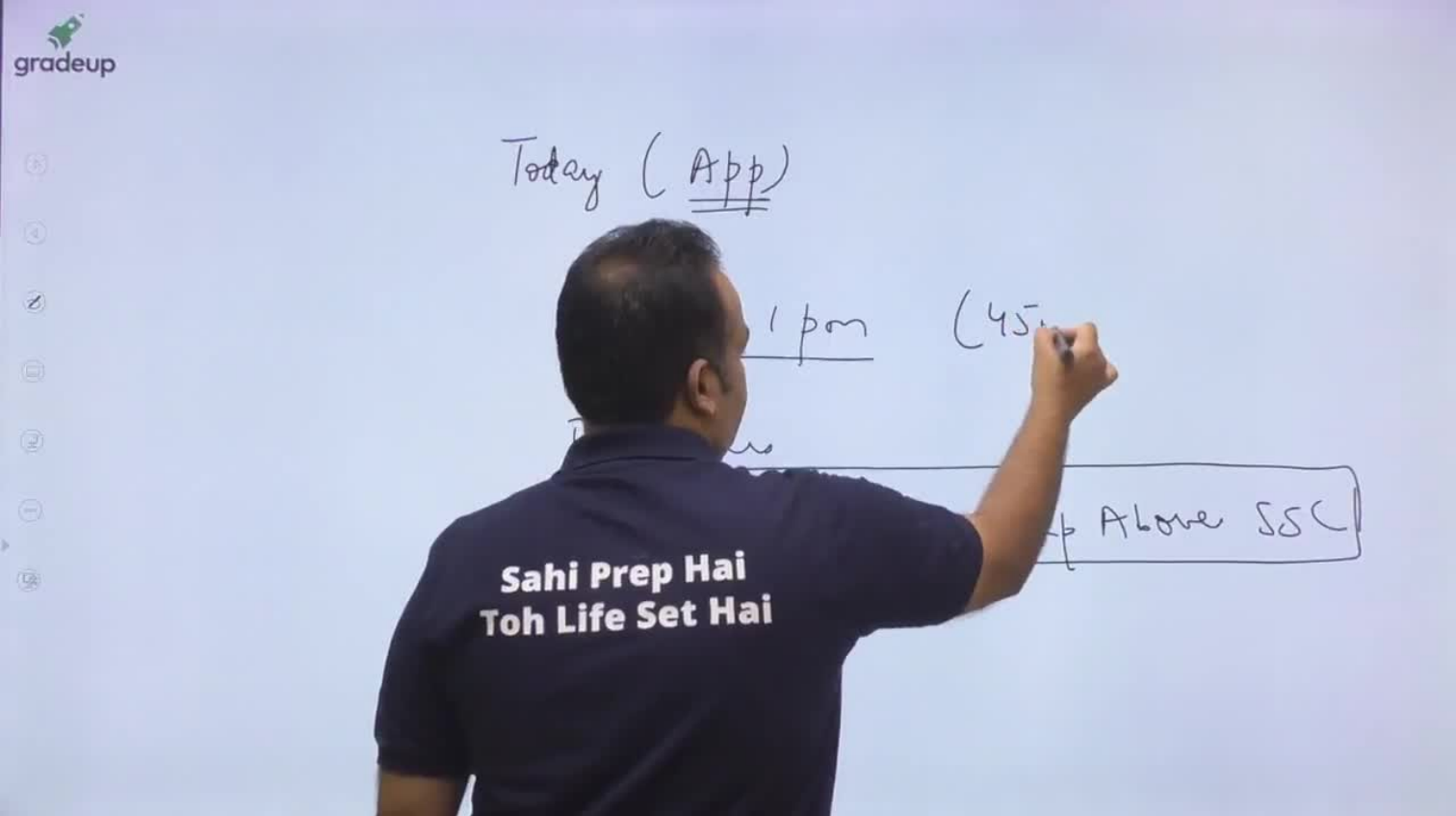
Today (App)

Time 1 pm

Reminder

Basic One Step Above SSC




gradeup
Today (App)
1 pm
Above SSC
Sahi Prep Hai
Toh Life Set Hai

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Today (App)

Time 1 pm (45 min)

Remainder

Basic to One Step Above SSC

4 Theory

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Today (App)

Time (45min)

Remain

One Step Above SSC

2 Dedicated

Sahi Prep Hai
Toh Life Set Hai

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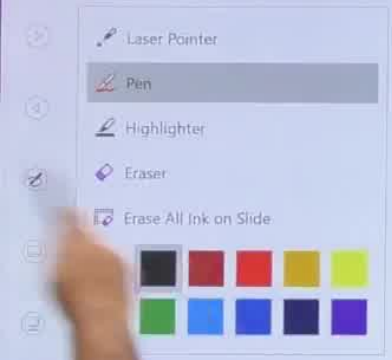

Today (App)

Time 1 pm (45 min)

Reminder

Basic to One Step Above SSC

→ Theory
→ 1 Practice
→ 2 Dedicated Practice
→

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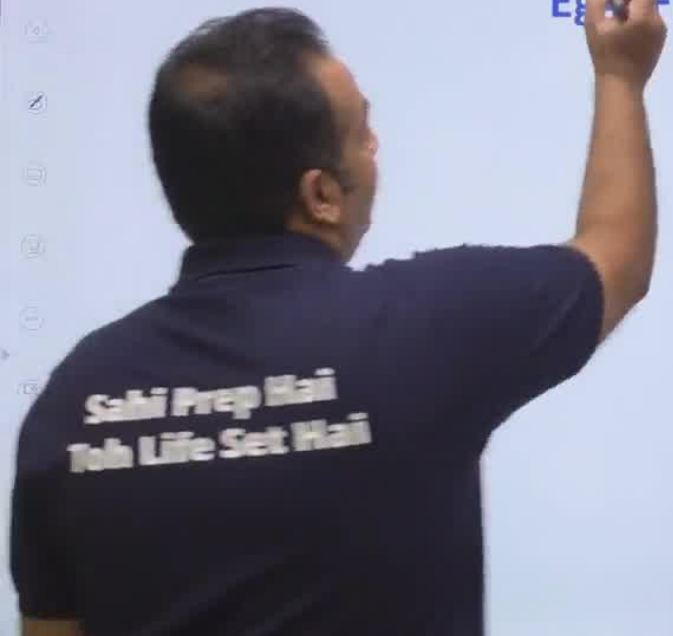
II. Common Division Method

Eg: Find the LCM of 42, 98, 50 & 54



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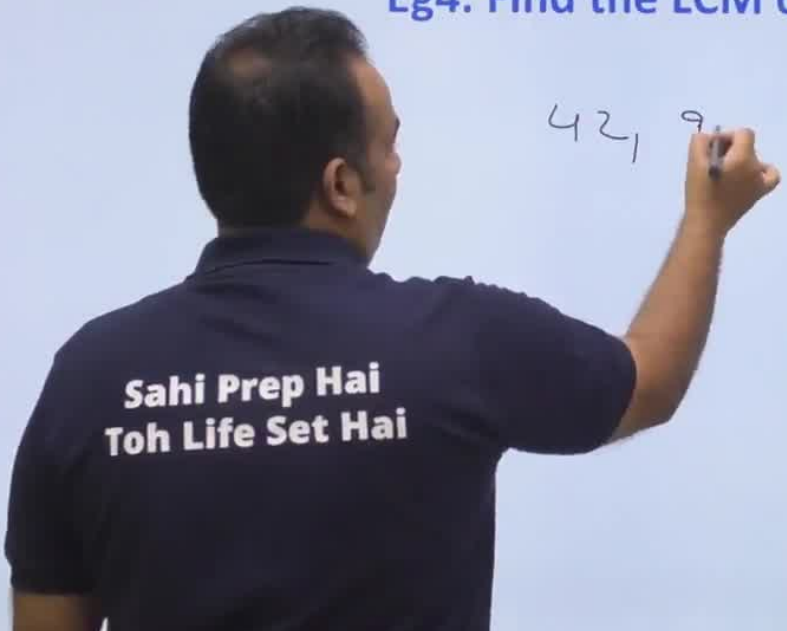
II. Common Division Method

Eg4. Find the LCM of 42, 98, 50 & 54

42, 9



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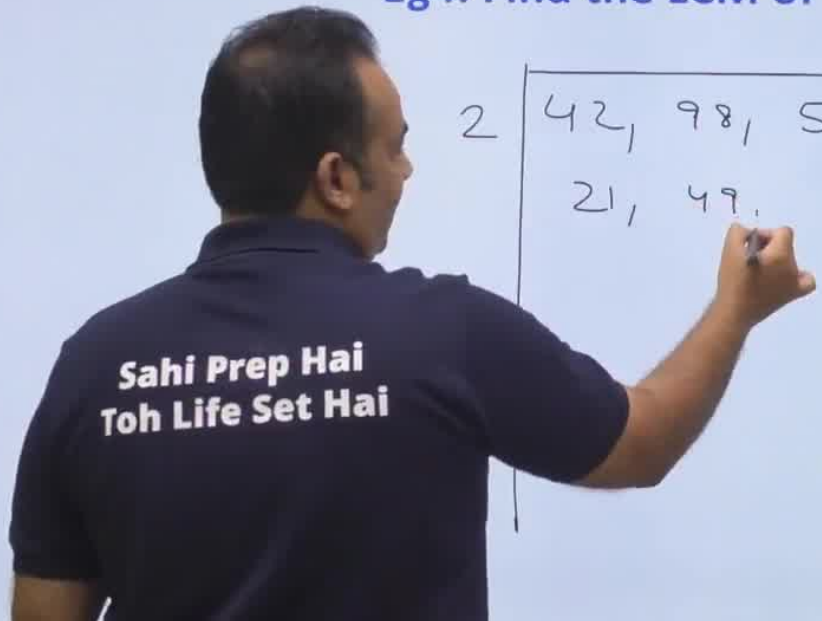
II. Common Division Method

Eg4. Find the LCM of 42, 98, 50 & 54

2	42, 98, 50, 54
	21, 49,



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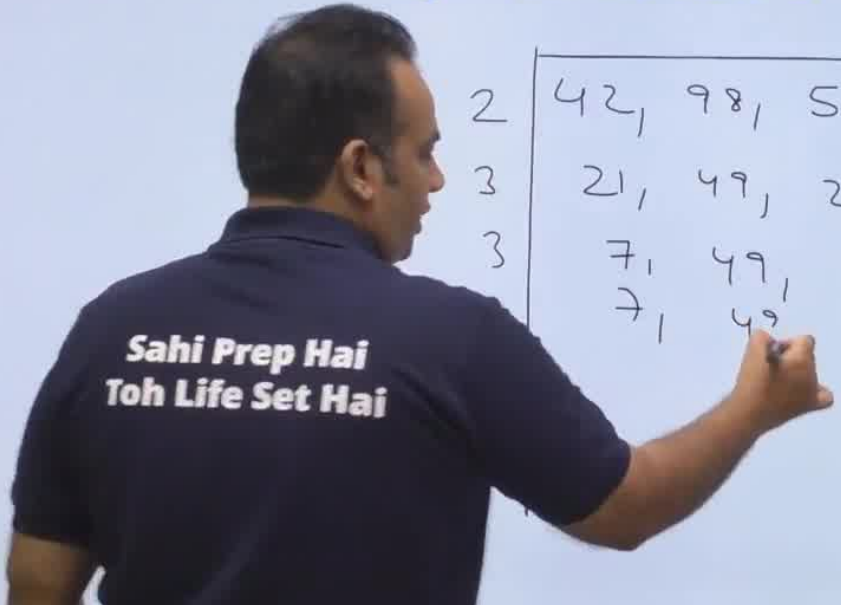
II. Common Division Method

Eg4. Find the LCM of 42, 98, 50 & 54

2	42, 98, 50, 54
3	21, 49, 25, 27
3	7, 49, 25, 9
	7, 49



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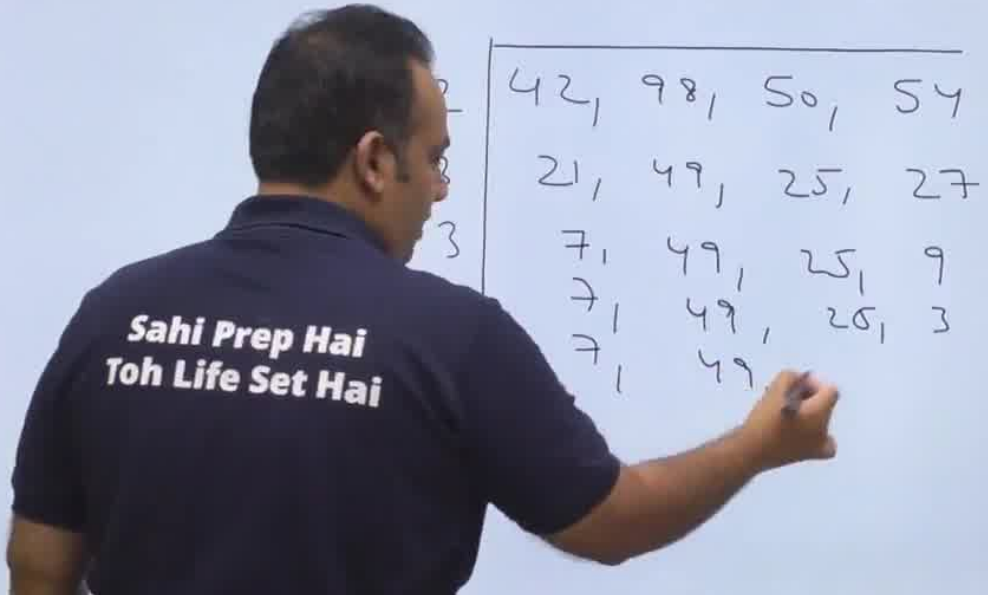

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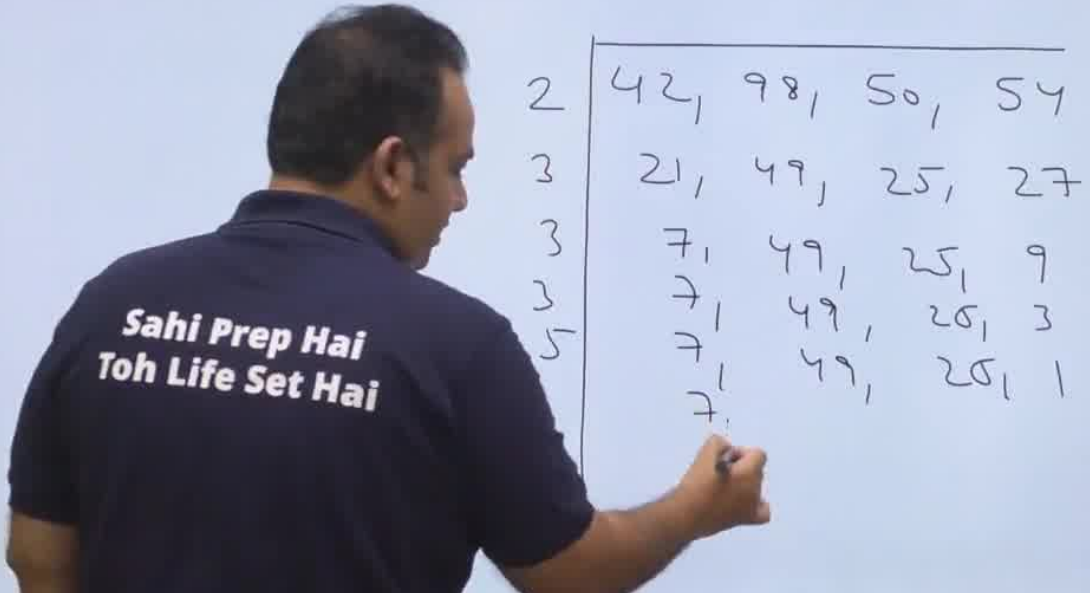

2	42, 98, 50, 54
3	21, 49, 25, 27
3	7, 49, 25, 9
3	7, 49, 25, 3
5	7, 49, 25, 1
	7, 1

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II. Common Division Method

Eg4. Find the LCM of 42, 98, 50 & 54

1350 × 7

9450 × 7

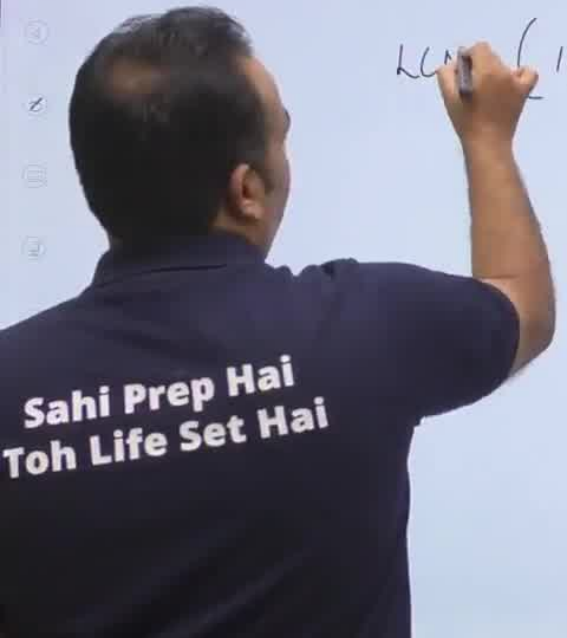
66150

2	42, 98, 50, 54
3	21, 49, 25, 27
3	7, 49, 25, 9
3	7, 49, 25, 3
5	7, 49, 25, 1
5	7, 49, 5, 1
7	7, 49, 1, 1
7	1, 7, 1, 1
	1, 1, 1, 1
	1

gradeup

Eg. If LCM of first 10 natural numbers is 'X' then what is the LCM of first 15 natural numbers?

LCM (1, 2, 3, ------ 10)



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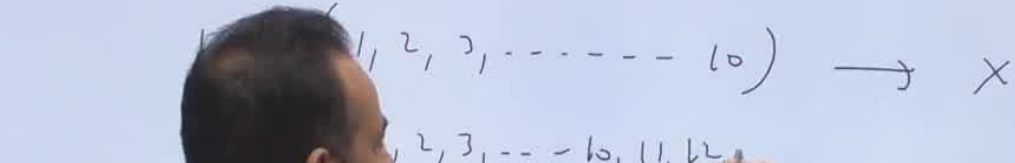
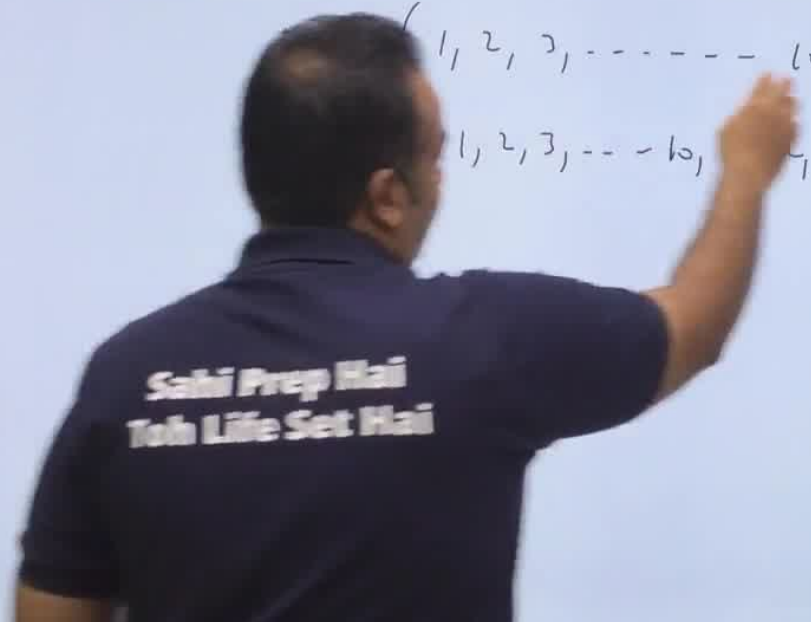


gradeup

Eg. If LCM of first 10 natural numbers is 'X' then what is the LCM of first 15 natural numbers?

$(1, 2, 3, \ldots\ldots 10) \longrightarrow X$

$(1, 2, 3, \ldots 10, \ldots 15) \longrightarrow ??$



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(1, 2, 3, ------ 10) → X

1, 2, 3, ---10, 11, 12, ---15) → ??

11, 12, 13.

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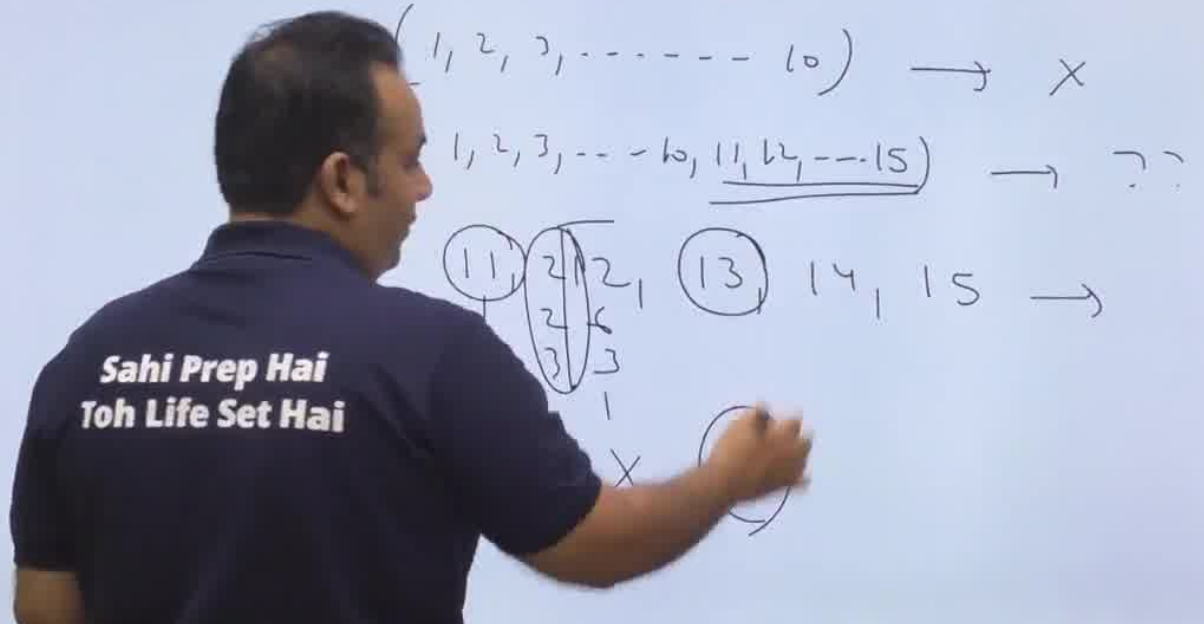

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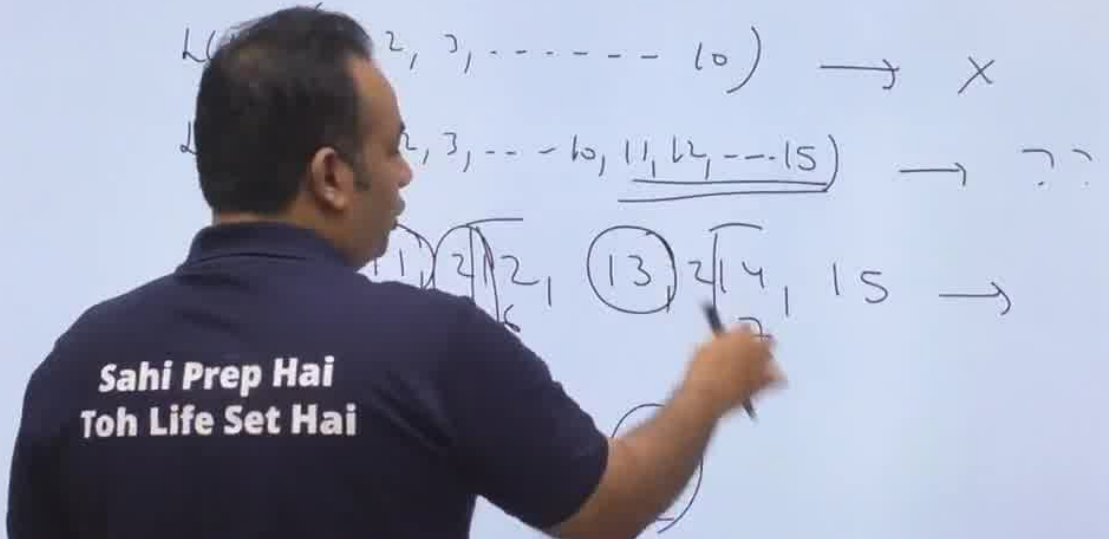

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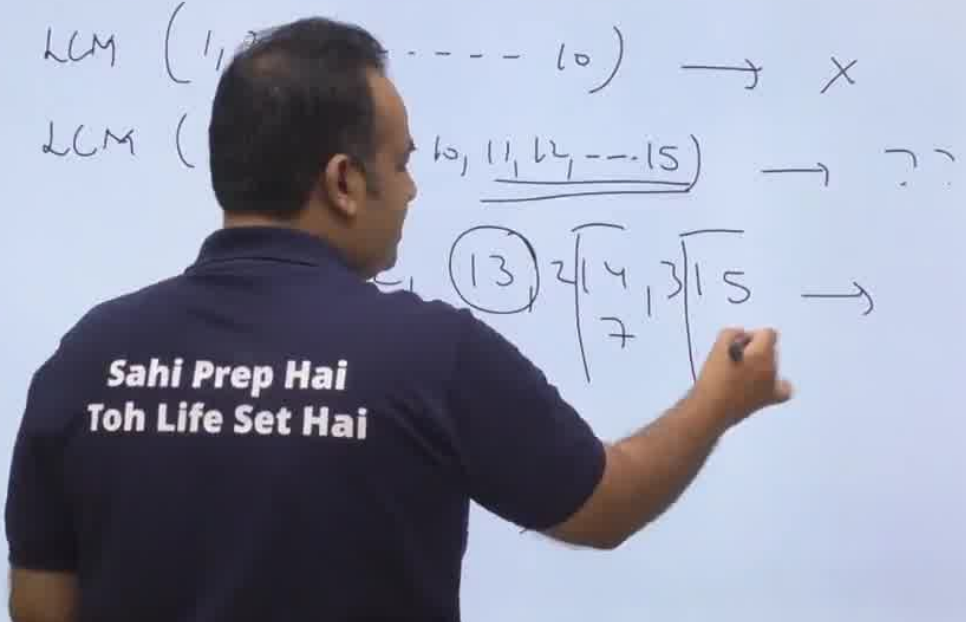

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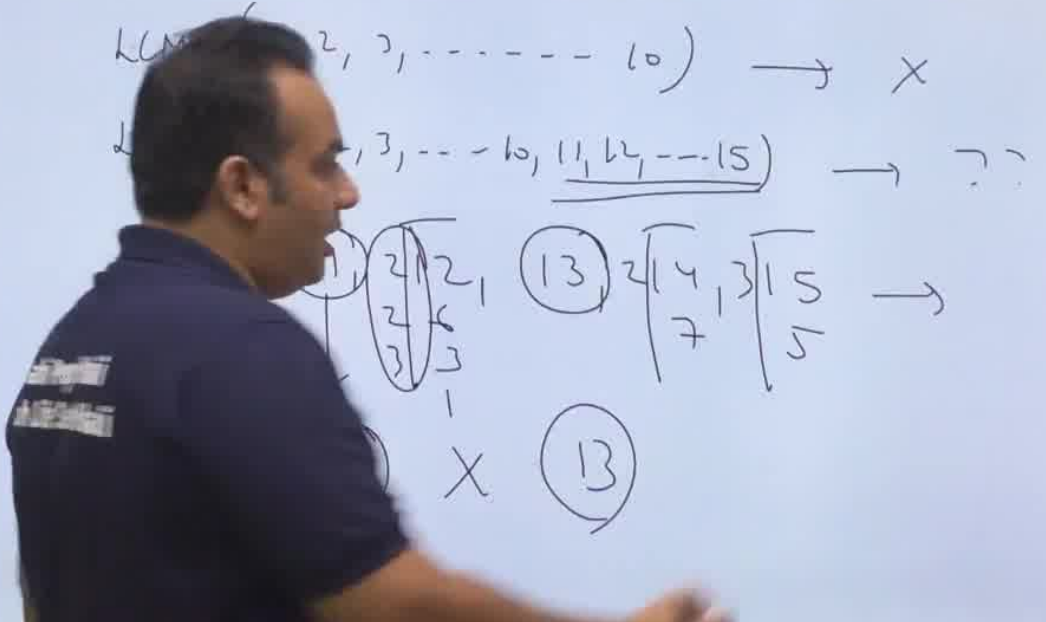

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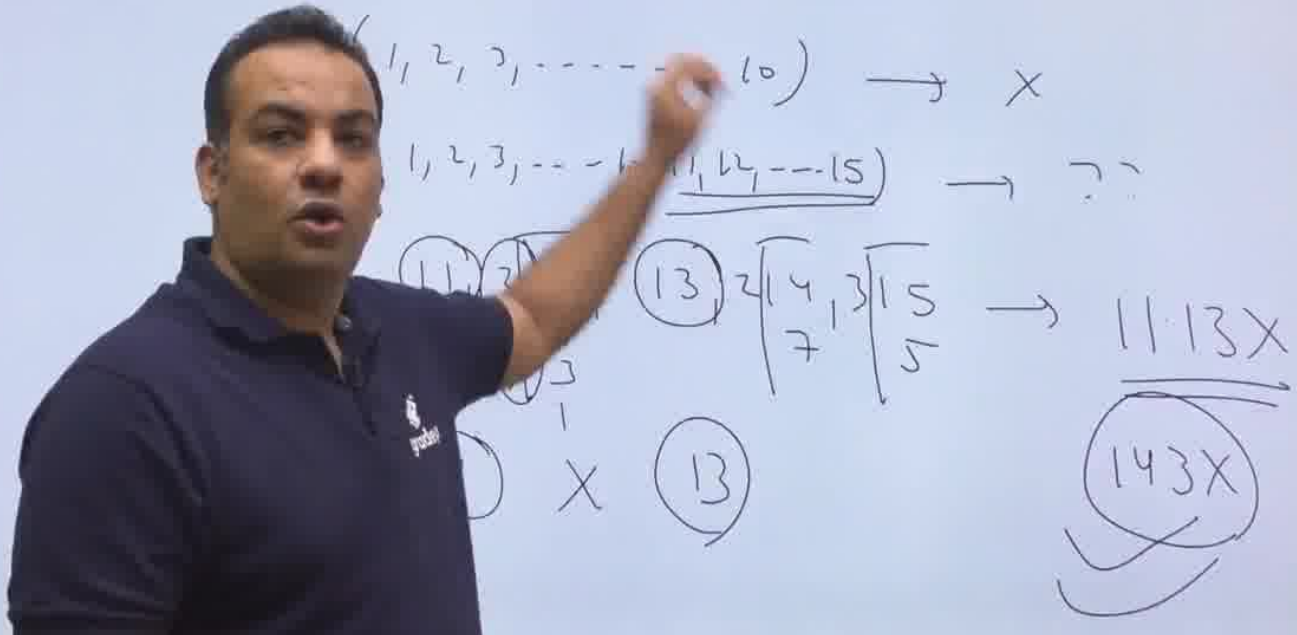

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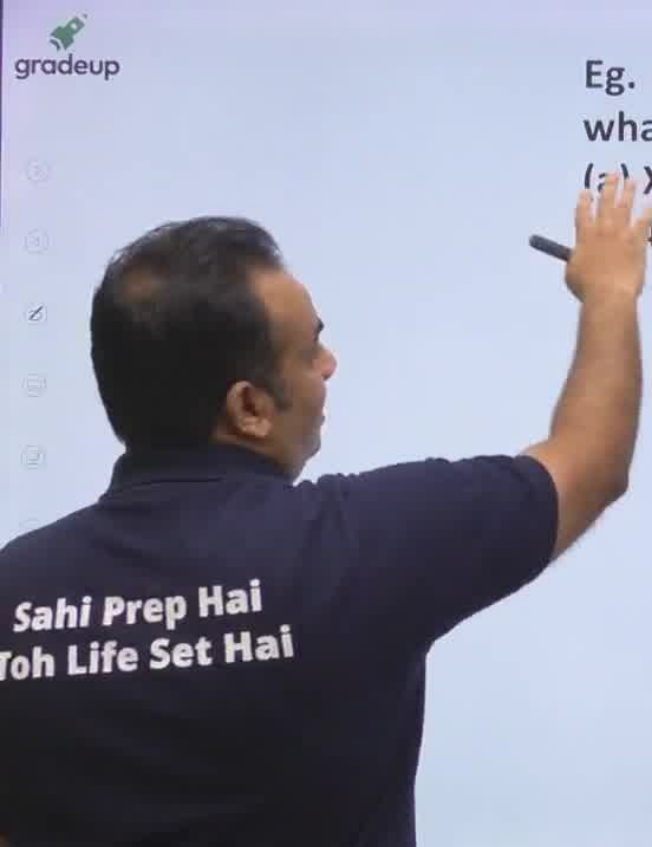
Eg. If LCM of first 20 natural numbers is 'X' then what is the LCM of first 25 natural numbers?

(a) X (b) 23X

483X (d) None of these



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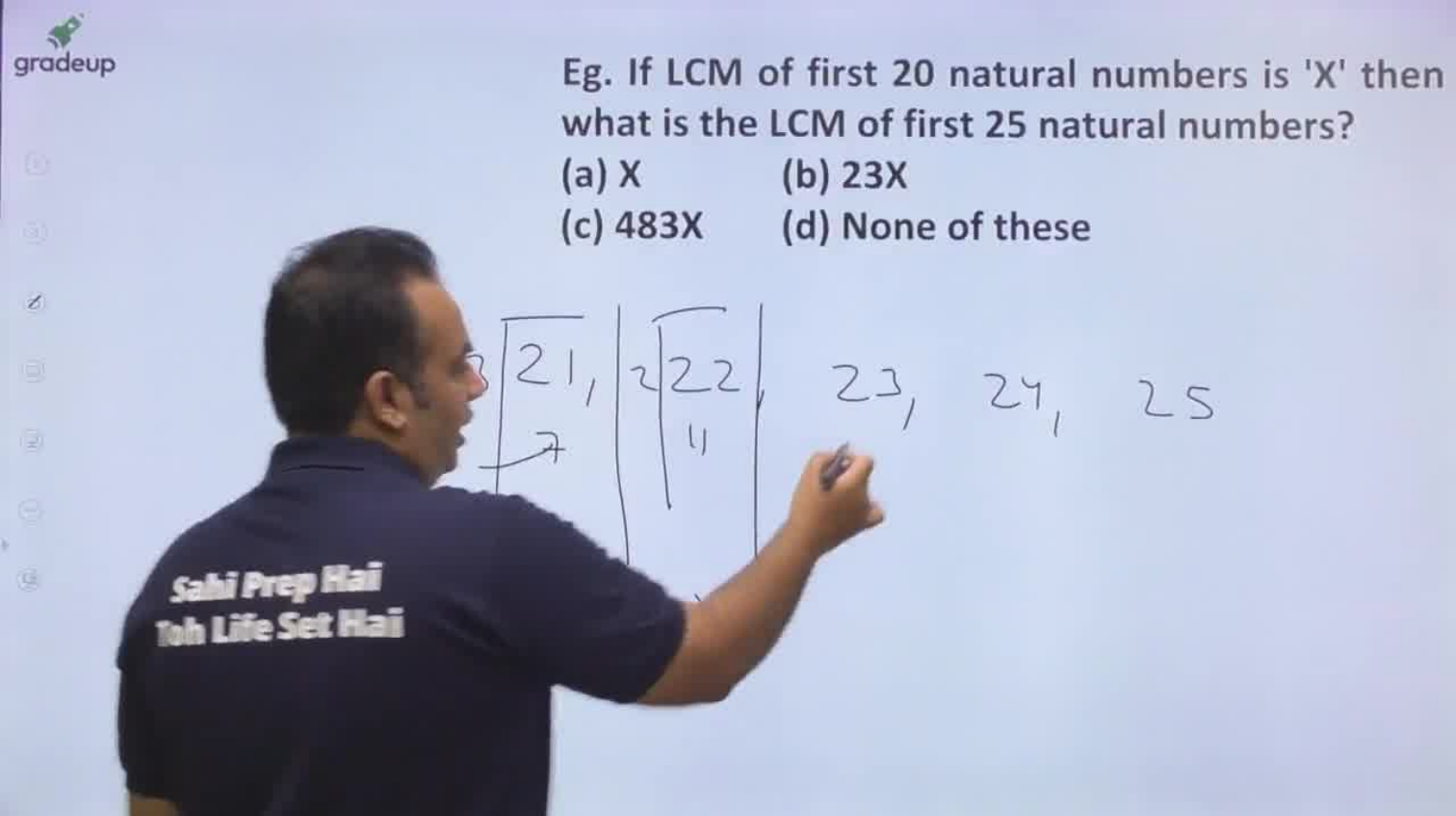
Eg. If LCM of first 20 natural numbers is 'X' then what is the LCM of first 25 natural numbers?

(a) X (b) 23X

(c) 483X (d) None of these



gradeup

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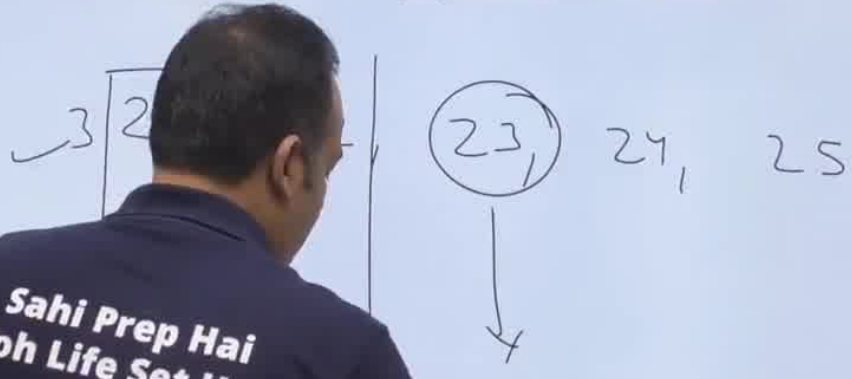
(a) X (b) 23X

(c) 483X (d) None of these



gradeup

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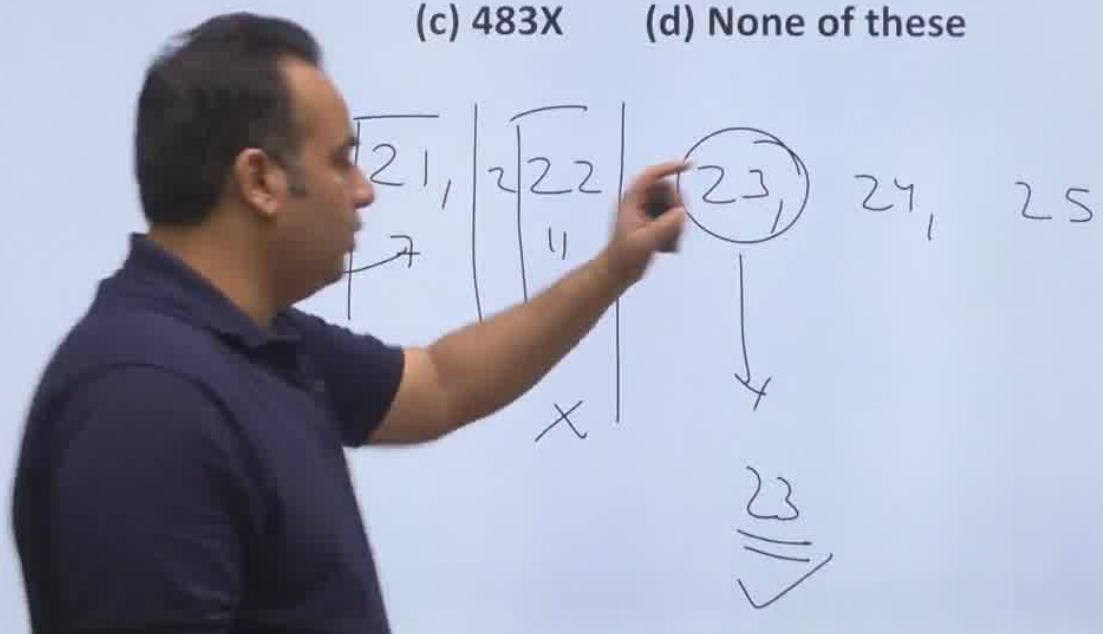

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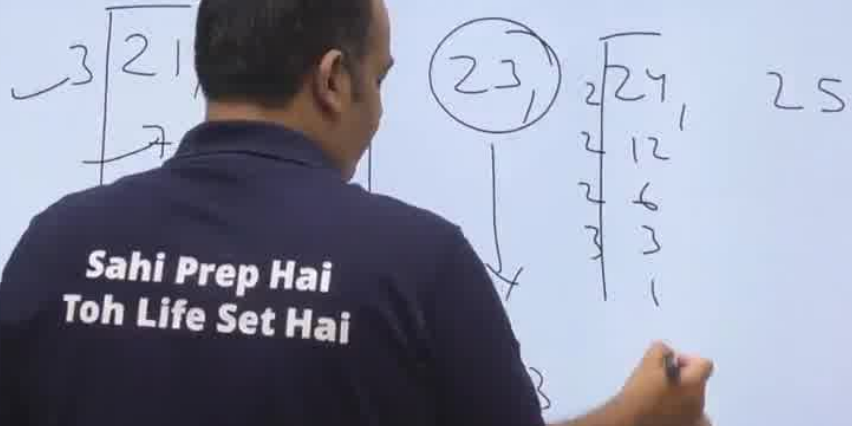
(a) X (b) 23X

(c) 483X (d) None of these



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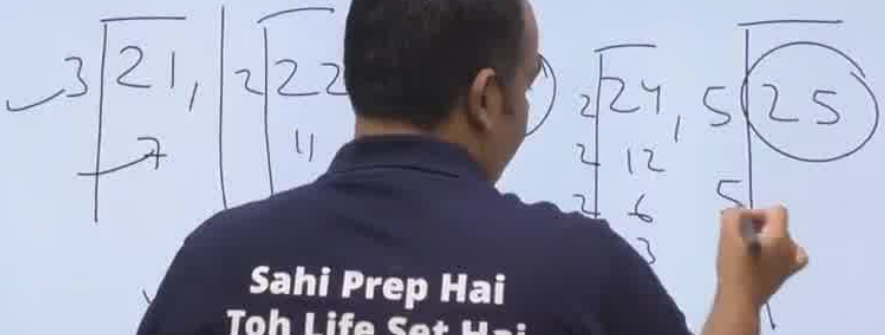
Eg. If LCM of first 20 natural numbers is 'X' then what is the LCM of first 25 natural numbers?

(a) X (b) 23X

(c) 483X (d) None of these



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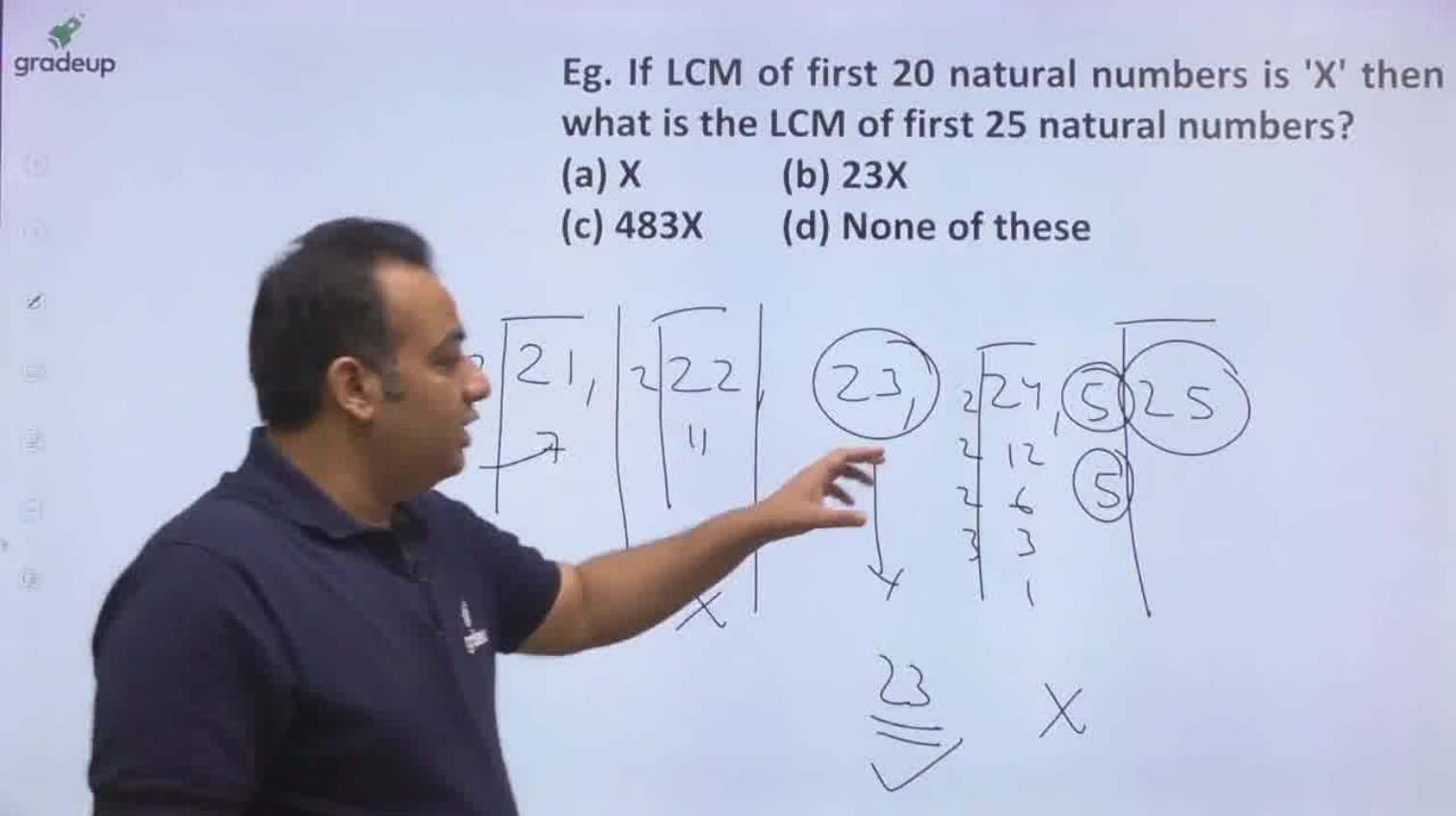
gradeup

Eg. If LCM of first 20 natural numbers is 'X' then what is the LCM of first 25 natural numbers?

(a) X (b) 23X

(c) 483X (d) None of these



gradeup

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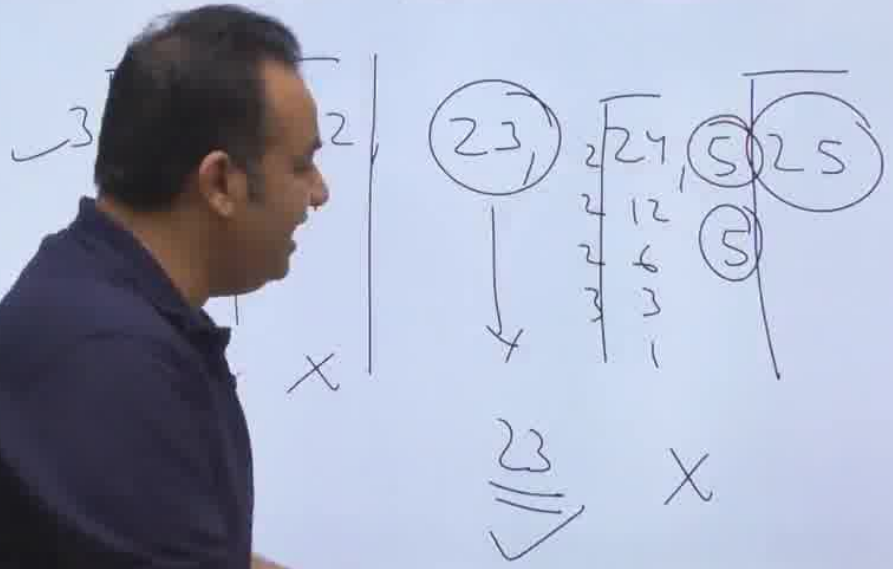


gradeup
gradeup

gradeup

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(a) X (b) 23X

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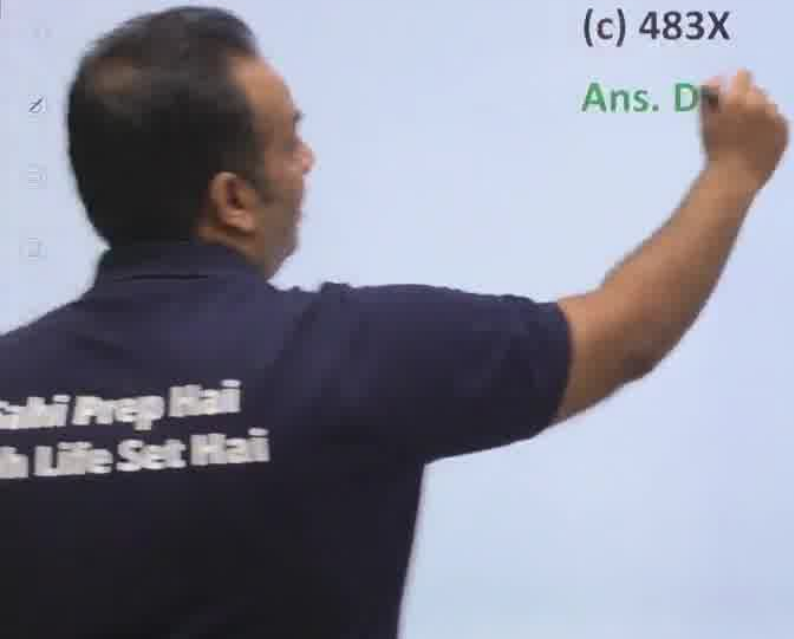
Ans. D



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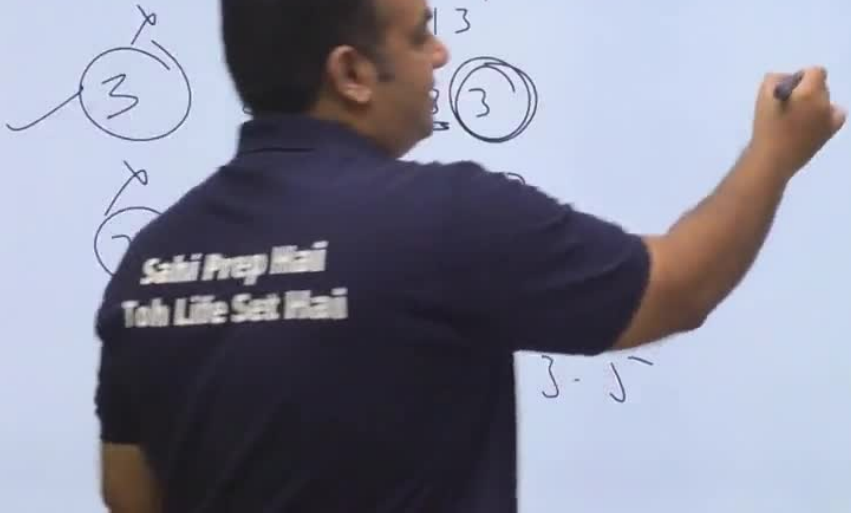
eg LCM of F

eg LCM of First 25 natural no = X

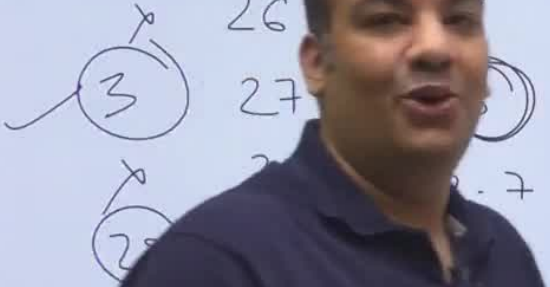
30 natural no = ??



gradeup

eg LCM of First 25 natural no = X

30 natural no = ??



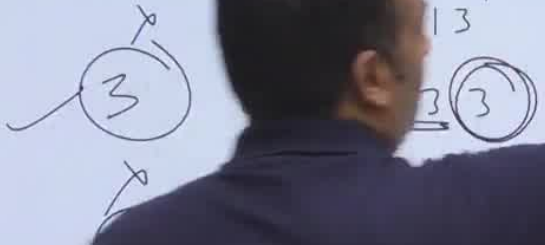
3 · 29 X

87 X ✓

gradeup

eg LCM of First 25 natural no = X

30 natural no = ?



3.29X

87X ✓

3.5

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HCF & LCM of Fractions

First con the fractions in their lowest form (if they are not in th lowest form)

Let & $\frac{c}{d}$ be the 2 fractions.

of $\frac{a}{b}$ & $\frac{c}{d}$ $= \frac{\text{HCF of a \& c}}{\text{LCM of b \& d}}$

CM of $\frac{a}{b}$ & $\frac{c}{d}$ $= \frac{\text{LCM of a \& c}}{\text{HCF of b \& d}}$

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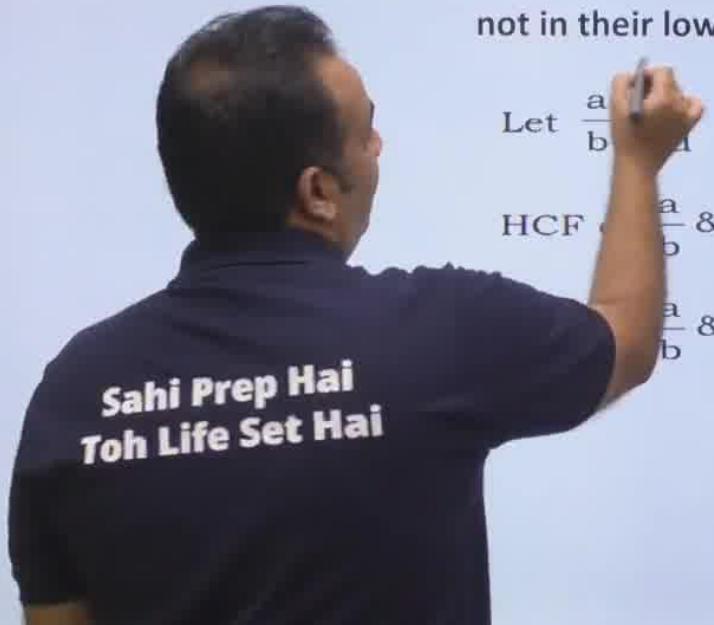
HCF & LCM of Fractions

First convert the fractions in their lowest form (if they are not in their lowest form)

Let $\frac{a}{b}$ and $\frac{c}{d}$ be the 2 fractions.

$$\text{HCF of } \frac{a}{b} \text{ \& } \frac{c}{d} = \frac{\text{HCF of a \& c}}{\text{LCM of b \& d}}$$

$$\text{LCM of } \frac{a}{b} \text{ \& } \frac{c}{d} = \frac{\text{LCM of a \& c}}{\text{HCF of b \& d}}$$



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Eg5. Find HCF of : $\frac{2}{9}$ & $\frac{16}{27}$

$$\frac{\text{HCF of } 2 \text{ \& } 16}{\text{LCM of } 9 \text{ \& } 27}$$

$$= \frac{2}{27}$$

gradeup

Eg5. Find HCF of : $\frac{2}{9}$ & $\frac{16}{27}$

$$= \frac{\text{HCF of } 2 \text{ \& } 16}{\text{LCM of } 9 \text{ \& } 27}$$

$$=$$

gradeup

Eg6. Find HCF of : $\frac{2}{9}$ & $\frac{32}{54}$

Ans. First convert $\frac{32}{54}$ in its lowest form $\frac{\cancel{32}^{16}}{\cancel{54}_{27}} = \frac{16}{27}$

$$\text{HCF of } \frac{2}{9} \& \frac{16}{27} = \frac{\text{HCF of } 2 \& 16}{\text{LCM } \& 9 \& 27}$$

$$= \frac{2}{27}$$

$\frac{2}{9}$, $\frac{\cancel{32}16}{\cancel{54}27}$

$= \frac{2}{27}$ ✓

gradeup

Eg7. Find LCM of : $\frac{18}{16}, \frac{27}{8}$ & $\frac{45}{12}$

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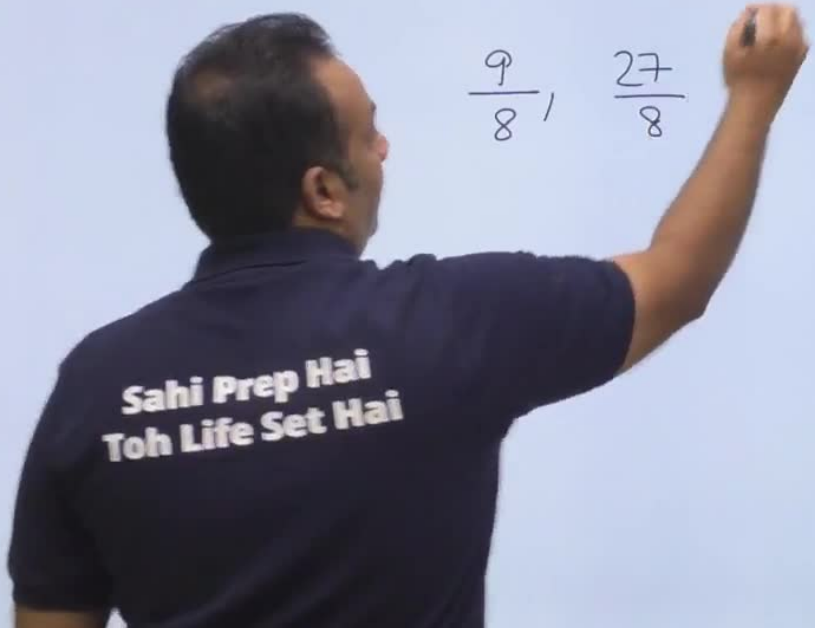
Eg7. Find LCM of : $\frac{18}{16}, \frac{27}{8}$ & $\frac{45}{12}$

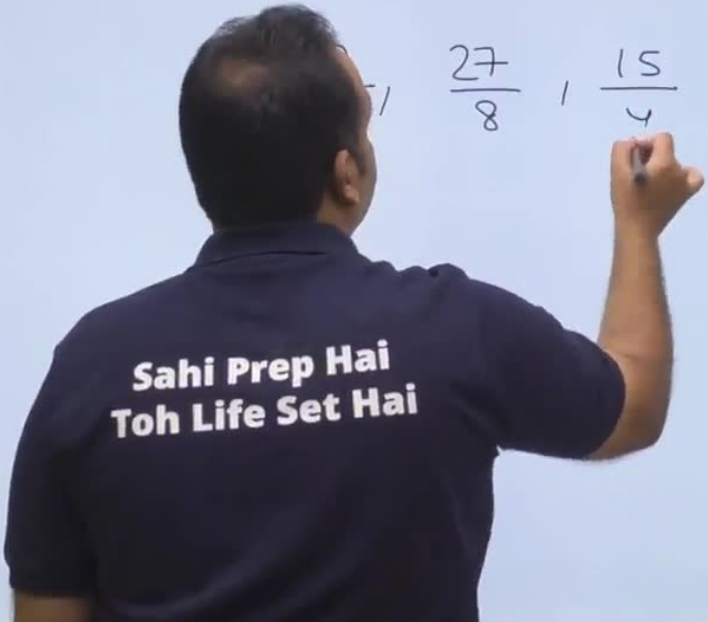
$\frac{9}{8}, \frac{27}{8}$



gradeup

Eg7. Find LCM of : $\frac{18}{16}, \frac{27}{8}$ & $\frac{45}{12}$

$\frac{27}{8}$, $\frac{15}{4}$

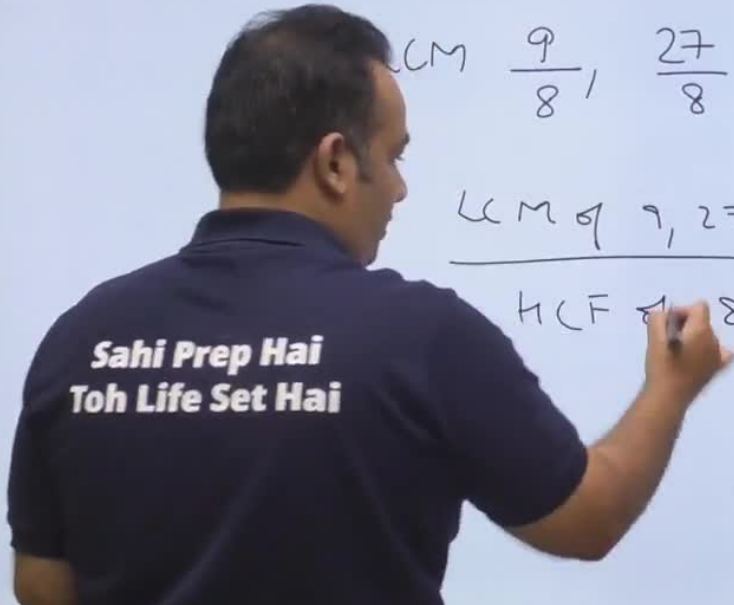


gradeup

Eg7. Find LCM of : $\frac{18}{16}, \frac{27}{8}$ & $\frac{45}{12}$

LCM $\frac{9}{8}, \frac{27}{8}, \frac{15}{4}$

$\frac{\text{LCM of } 9, 27 \& 15}{\text{HCF of } 8, 8 \& 4}$



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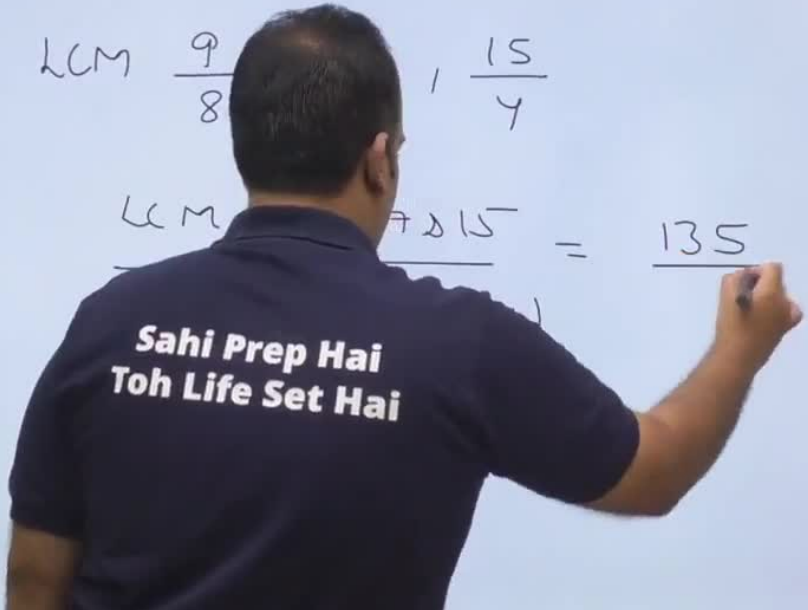
Eg7. Find LCM of : $\frac{18}{16}, \frac{27}{8}$ & $\frac{45}{12}$

LCM $\frac{9}{8}$, $\frac{15}{4}$

$\frac{LCM}{\quad} = \frac{9 \times 15}{\quad} = \frac{135}{\quad}$



gradeup

$$HCF \times LCM = N_1 \cdot N_2$$

Product of HCF & LCM of 2 numbers is always equal to the product of the 2 numbers.

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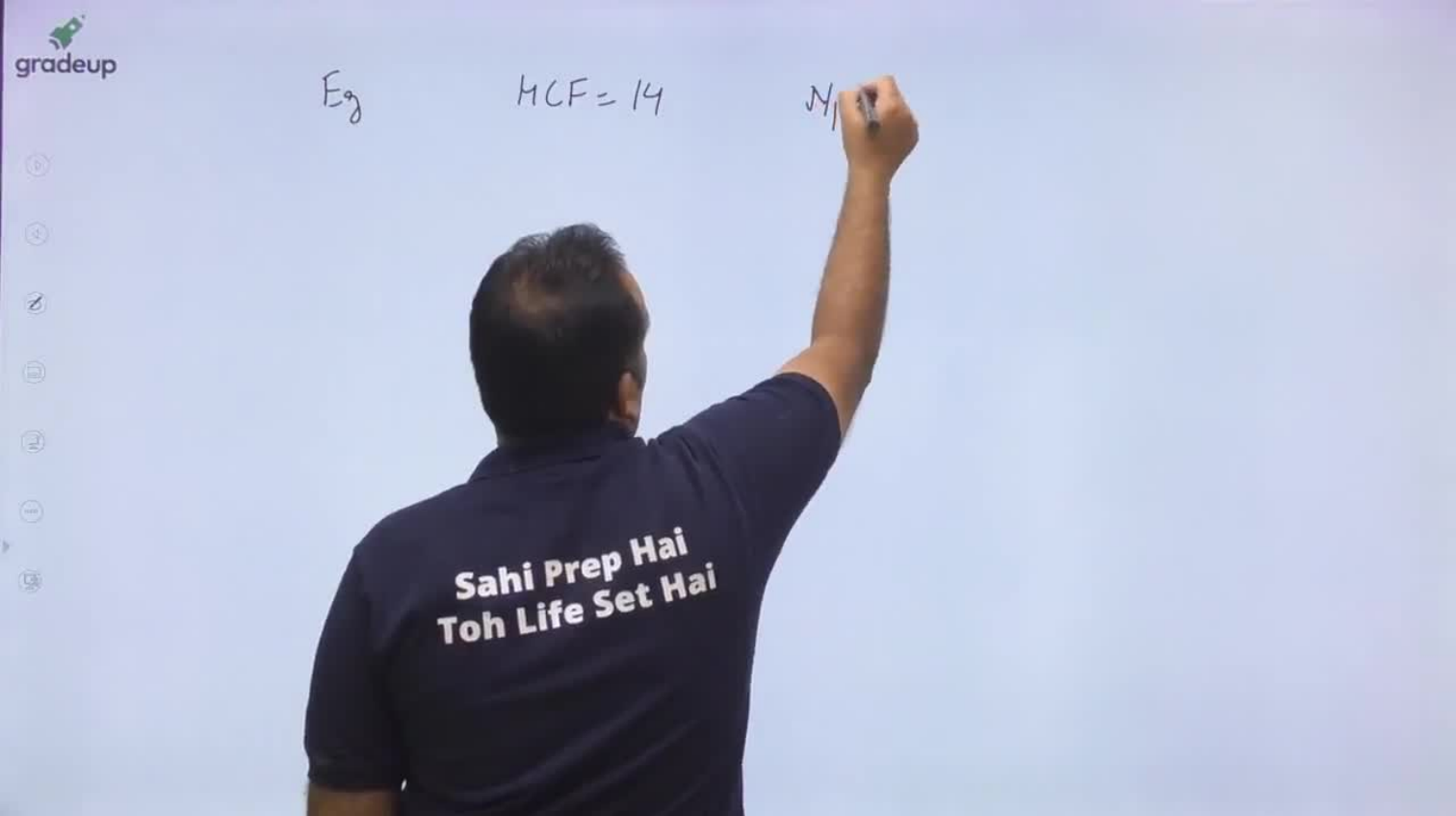
$$HCF \times LCM = N_1 \cdot N_2$$

Product of HCF & LCM of 2 numbers is always
ual to the product of the 2 numbers.


gradeup
Eg
HCF = 14
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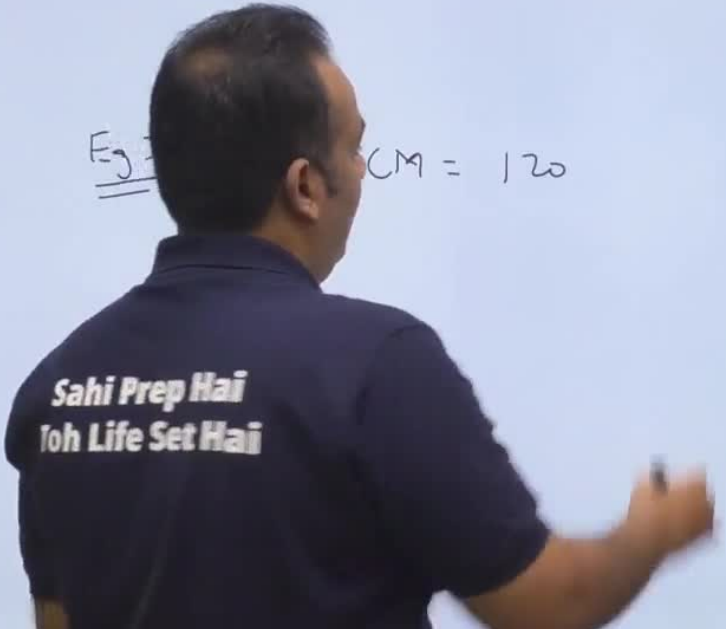
gradeup

Eg HCF = 14 $N_1 \cdot N_2 = 784$

gradeup

Eg 2 HCF = 14 $N_1 \cdot N_2 = 784$ LCM = ??

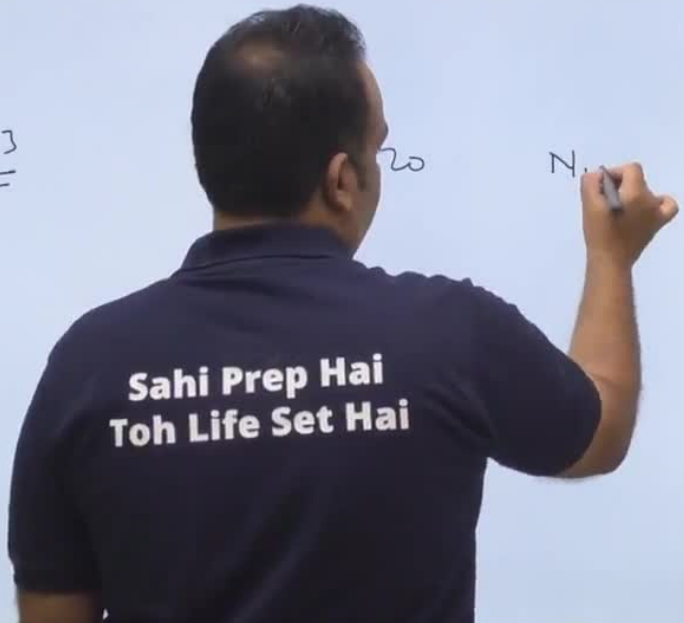
Eg ? CM = 120



gradeup

Eg 2 HCF = 14 $N_1 \cdot N_2 = 784$ LCM = ??

Eg 3 20 N_1

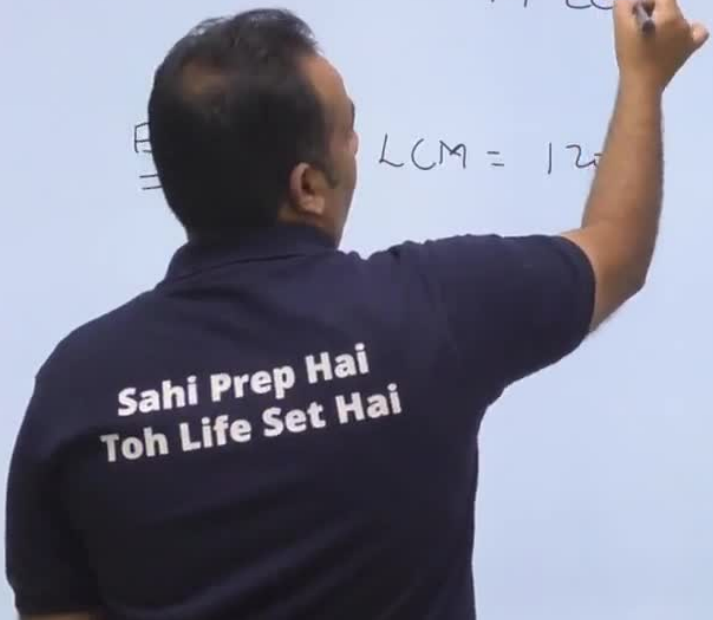


gradeup

Eg 2 HCF = 14 $N_1 \cdot N_2 = 784$ LCM = ??

14 · LCM

LCM = 12 $N_1 \cdot N_2 = 360$ HCF = ??

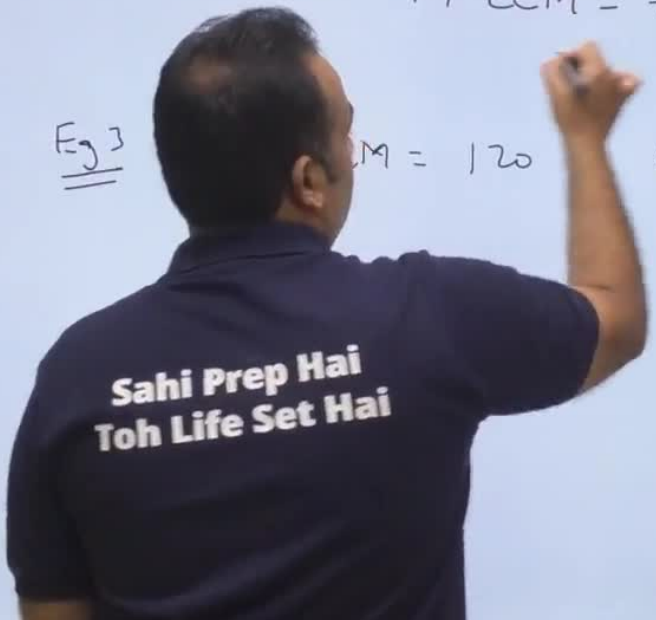


gradeup

Eg 2 HCF = 14 $N_1 \cdot N_2 = 784$ LCM = ??

$14 \cdot LCM = 784$

Eg 3 LCM = 120 $N_1 \cdot N_2 = 360$ HCF = ??



gradeup

Eg 2 HCF = 14 $N_1 \cdot N_2 = 784$ LCM = ??

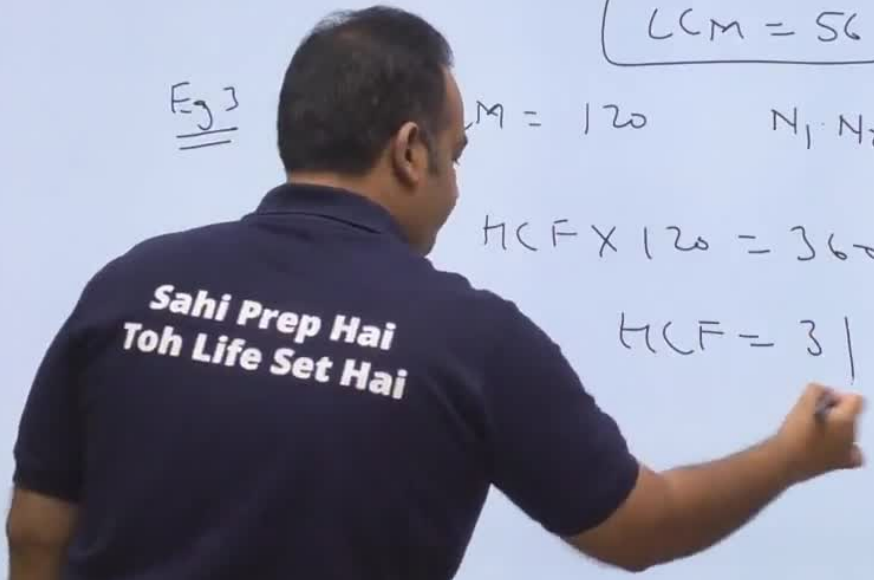
$14 \cdot LCM = 784$

$LCM = 56$

Eg 3 LCM = 120 $N_1 \cdot N_2 = 360$ HCF = ??

$HCF \times 120 = 360$

$HCF = 3$



gradeup

Eg 2 HCF = 14 $N_1 \cdot N_2 = 784$ LCM = ??

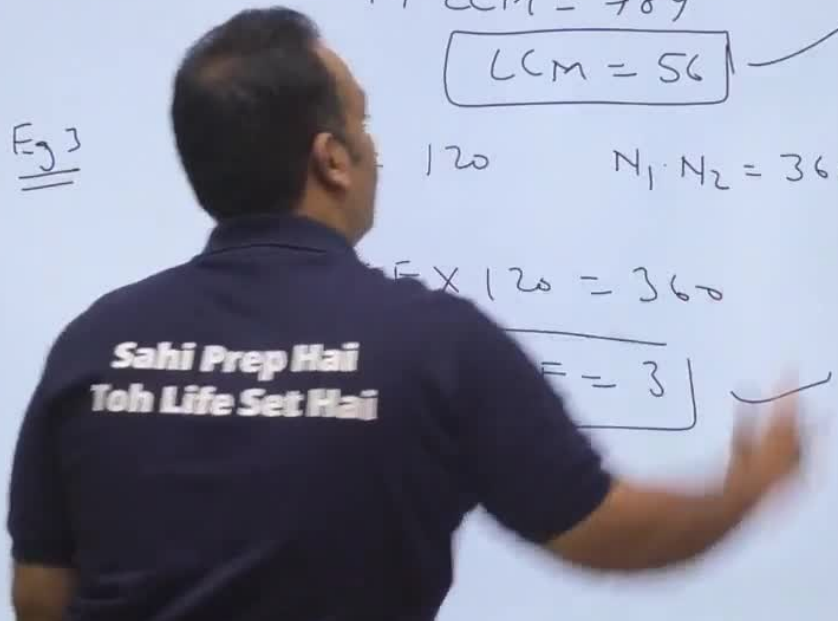
$14 \cdot LCM = 784$

LCM = 56

Eg 3 = 120 $N_1 \cdot N_2 = 360$ HCF = ??

$\times 120 = 360$

$= 3$



gradeup

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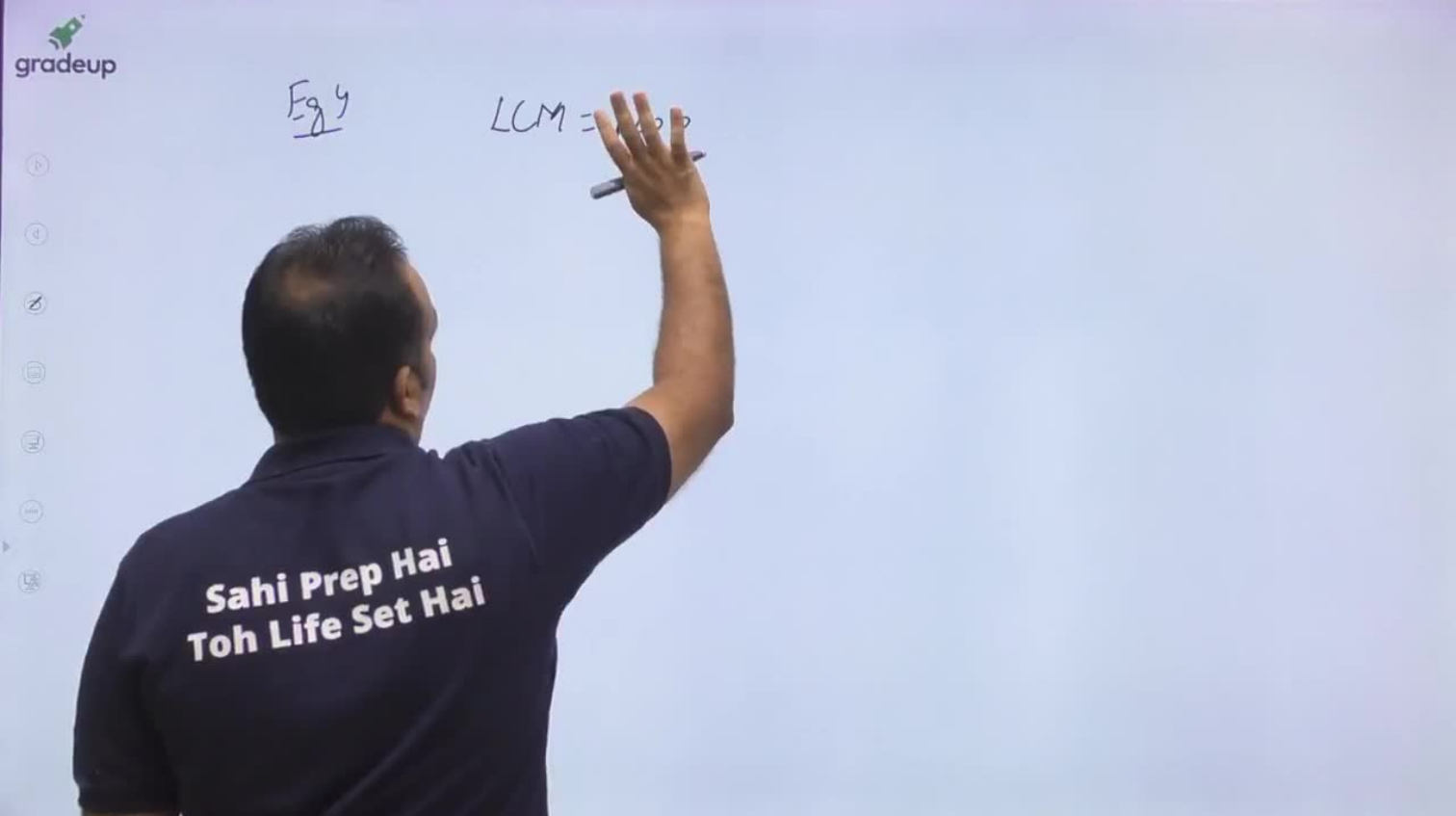
LCM = 56

Eg 3 LCM = 120 $N_1 \cdot N_2 = 360$ HCF = ??

$HCF \times 120 = 360$

HCF = 3


gradeup
Eg 4
LCM =
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Eg 4 LCM = 1200 N

gradeup

Eg 4 LCM = 1200 $N_1 \cdot N_2 =$

gradeup

Eg $N_1 \cdot N_2 =$

Eg $N_1 \cdot N_2 = 12$

gradeup

Eg $N_1 \cdot N_2 = 1200$

gradeup

Eg $N_1 \cdot N_2 = 1200$ LCM = 5

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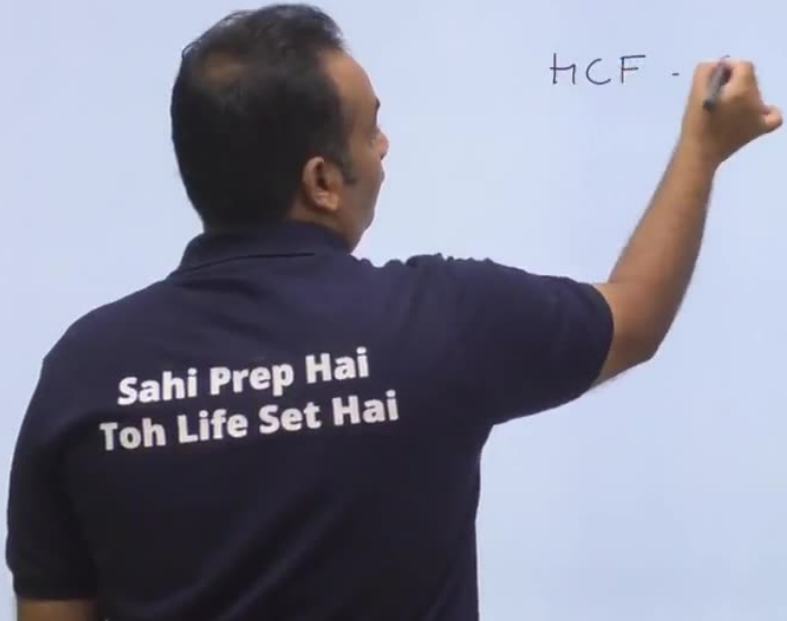
Eg $N_1 \cdot N_2 = 1200$ LCM = 50, HCF = 77

HCF ·



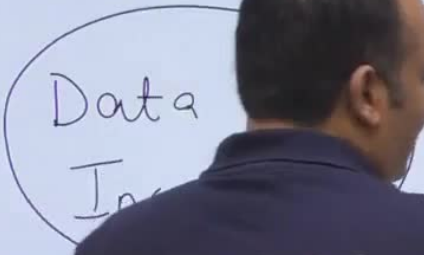
gradeup

Eg $N_1 \cdot N_2 = 1200$ LCM = 50, HCF = 77

Soln

$HCF \cdot 50 = 1200$

$HCF = 24$



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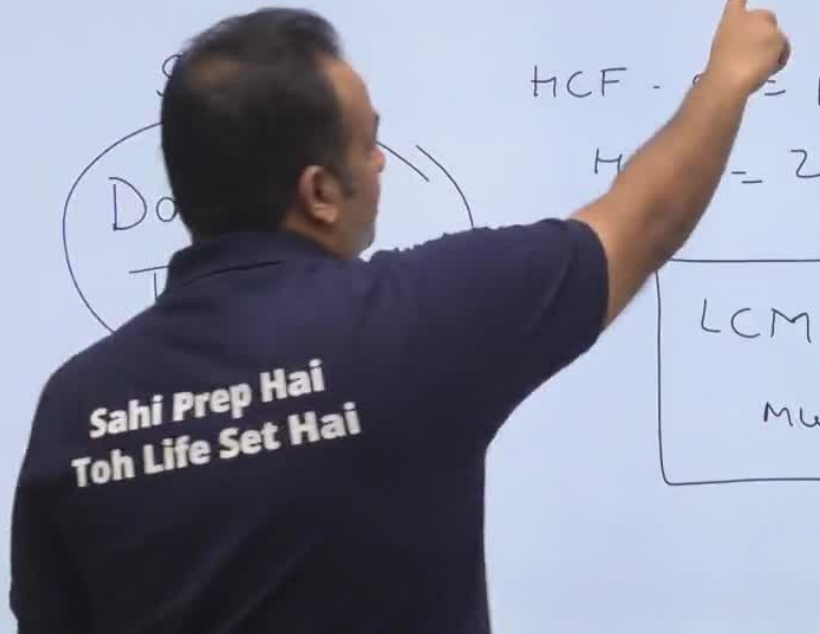
Eg $N_1 \cdot N_2 = 1200$ LCM = 50, HCF = 77

HCF · LCM = 1200

H = 24

Do

LCM is always a multiple of HCF



gradeup

Eg $N_1 \cdot N_2 = 1200$ LCM = 50, HCF = 77

Soln

HCF · 50 = 1200

HCF = 24

Dat

I

M is always a multiple of HCF

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Eg $N_1 \cdot N_2 = 1200$ LCM = 50, HCF = 77

Soln

HCF · 50 = 1200

HCF =

Data

Incon

is always a

ultiple of HCF

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Eg $N_1 \cdot N_2 = 1200$ LCM = 50, HCF = 77

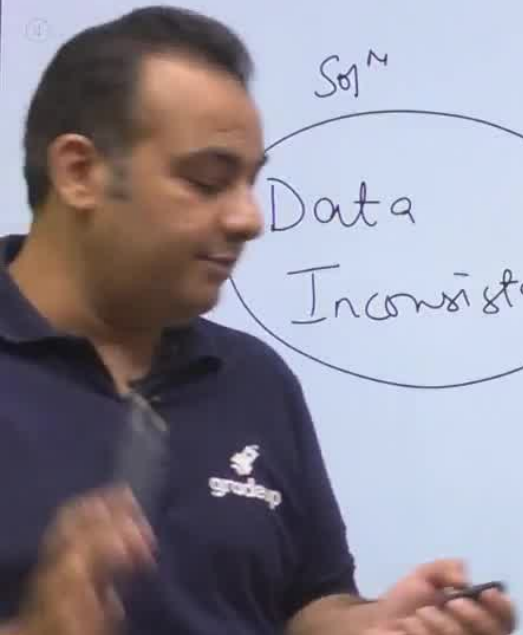
Soln

Data Inconsistent

$HCF \cdot 50 = 1200$

$HCF = 24$

* LCM is always a multiple of HCF



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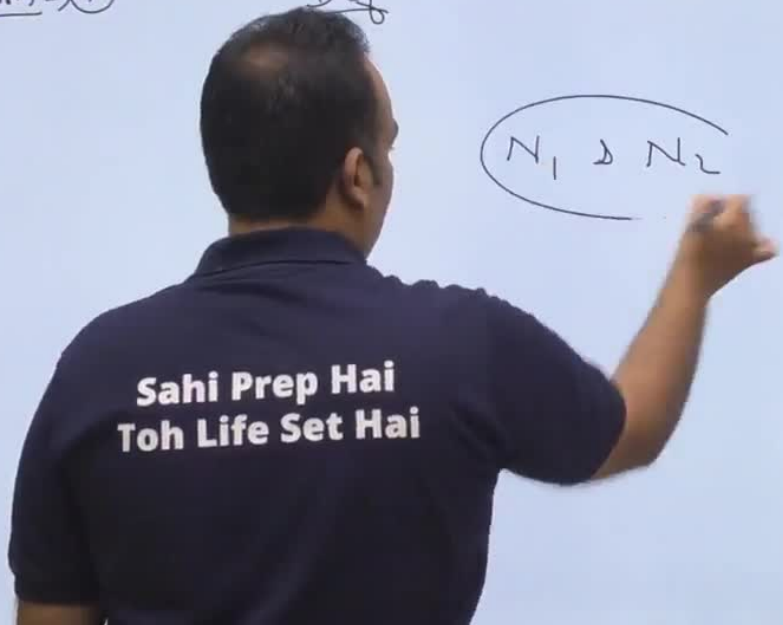
LCM is always a

gradeup

LCM is always a multiple of HCF

Rem → (1) Def

N_1 & N_2



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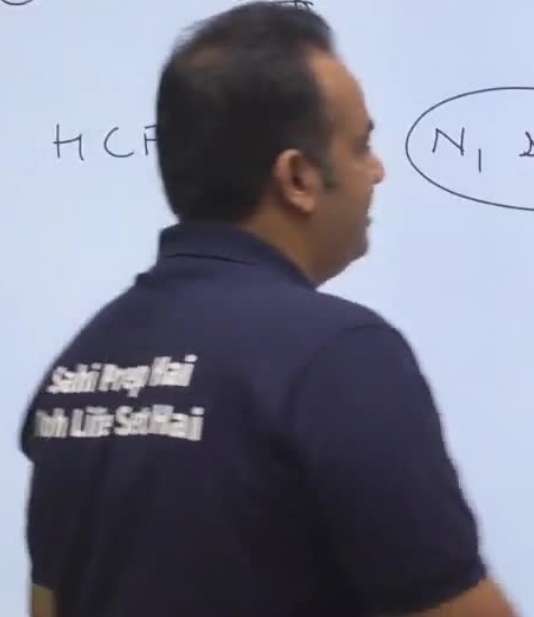
LCM is always a multiple of HCF

Ream → (1) Def

HCF

N_1 & N_2



LCM is always a multiple of HCF

Reason → (1)

Def

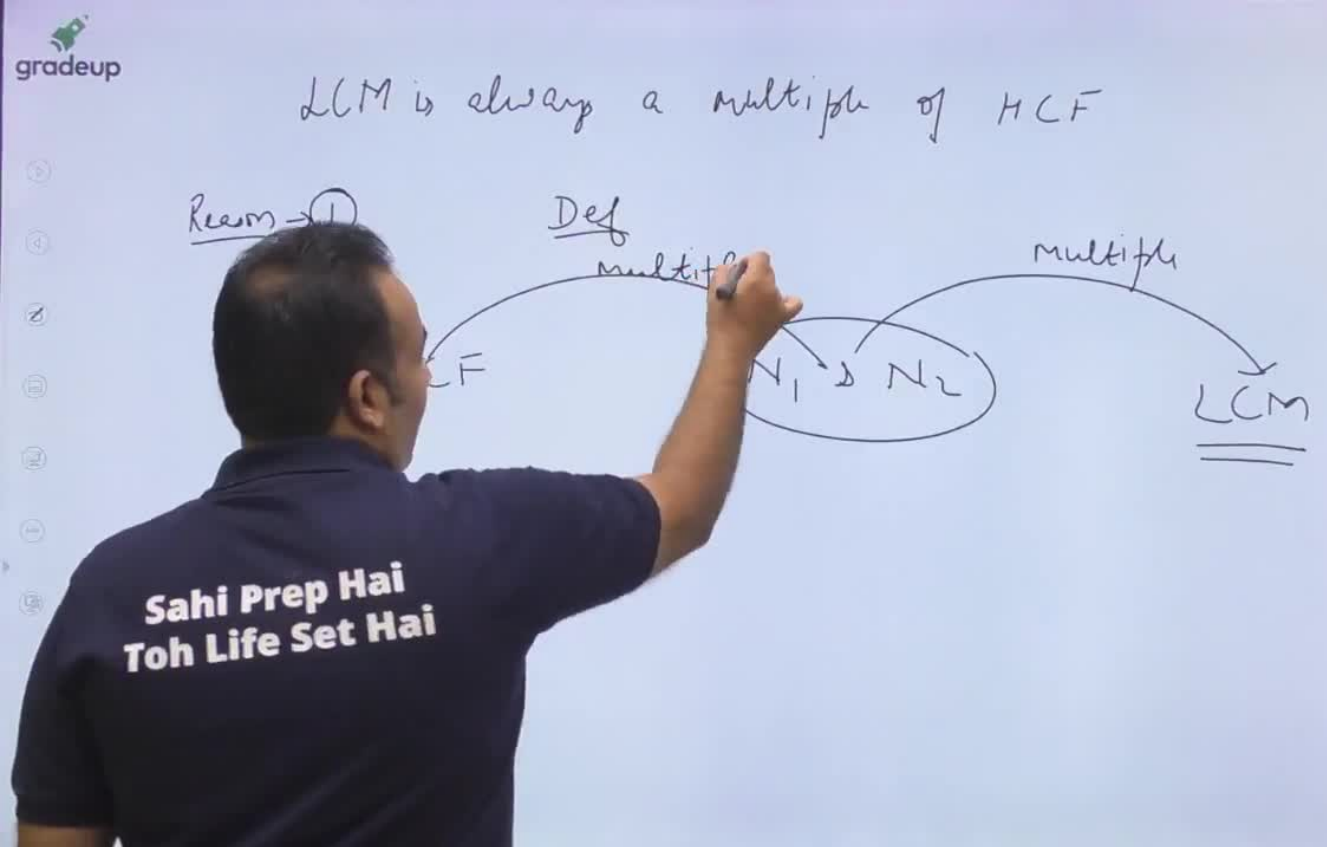
multiple

multiple

CF

N_1 & N_2

LCM



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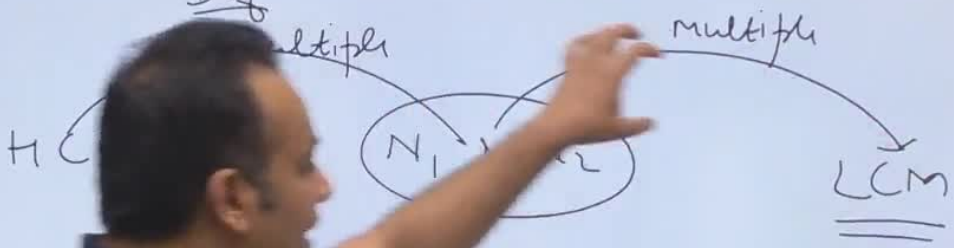
LCM is always a multiple of HCF

Ream → (1)

Def



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Eg8. HCF of 2 numbers is 12 & their product is 216. What is the LCM of 2 numbers.

Ans. HCF× LCM = $N_1 . N_2$

$12 \times LCM = 216$

$$LCM = \frac{216}{12} \Rightarrow 18$$

But Here LCM = 18 which is not a multiple of 12, so Data Inconsistent.

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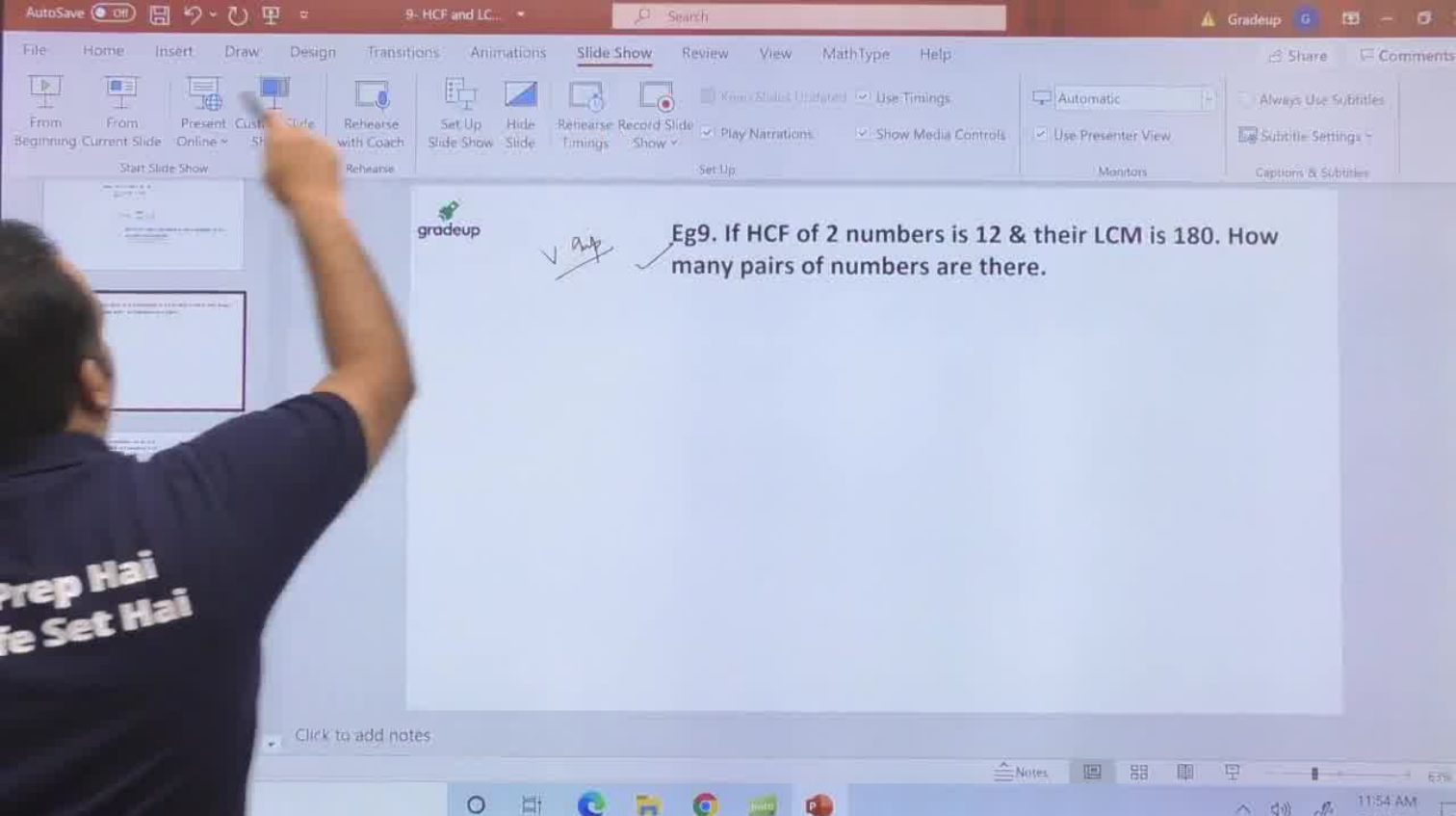
Eg9. If HCF of 2 numbers is 12 & their LCM is 180. How many pairs of numbers are there.


AutoSave
9- HCF and LC...
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Draw
Design
Transitions
Animations
Slide Show
Review
View
MathType
Help
Share
Comments
From Beginning
From Current Slide
Present Online
Rehearse with Coach
Set Up Slide Show
Hide Slide
Rehearse Timings
Record Slide Show
Use Timings
Play Narrations
Show Media Controls
Automatic
Use Presenter View
Always Use Subtitles
Subtitle Settings
Start Slide Show
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Monitors
Captions & Subtitles
gradeup
Eg9. If HCF of 2 numbers is 12 & their LCM is 180. How many pairs of numbers are there.
Prep Hai
fe Set Hai
Click to add notes
Notes
11:54 AM

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V. Imp

Eg9. If HCF of 2 numbers is 12 & their LCM is 180. How many pairs of numbers are there.

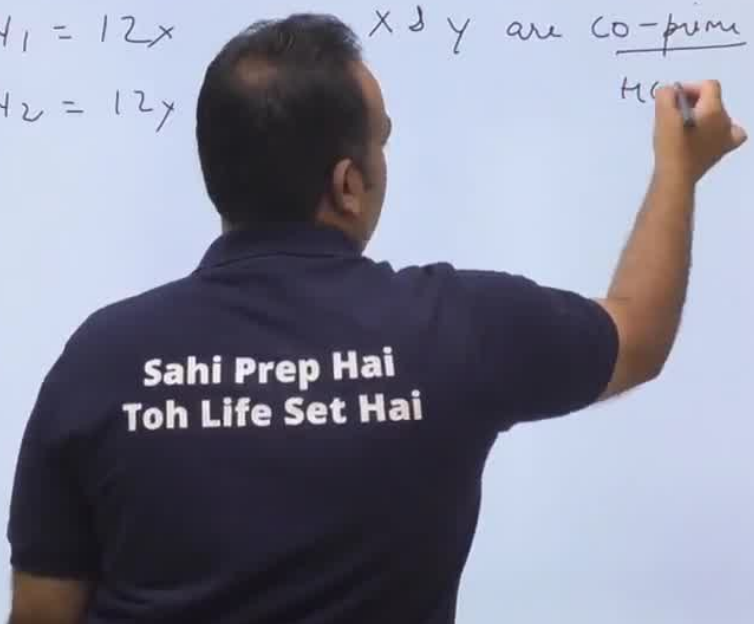
Soln

$N_1 = 12x$

$N_2 = 12y$

x & y are co-prime

HC



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Eg9. If HCF of 2 numbers is 12 & their LCM is 180. How many pairs of numbers are there.

Sol^N

$N_1 = 12x$

$N_2 = 12$

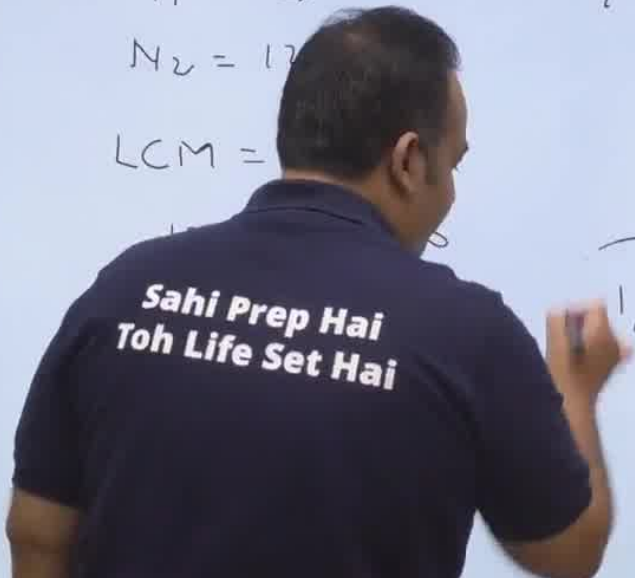
LCM =

x & y are co-prime

HCF = 1

1, 15

3, 5



gradeup

Eg9. If HCF of 2 numbers is 12 & their LCM is 180. How many pairs of numbers are there.

$N_1 = 12x$

$N_2 = 12y$

$LCM = 12xy$

$12xy = 180$

$xy = 15$

x & y are co-prime

HCF = 1

1, 15

3, 5

2 pairs

gradeup

Eg9. If HCF of 2 numbers is 12 & their LCM is 180. How many pairs of numbers are there.

Sol^N

12x

2y

12xy = 180

x & y are co-prime

HCF = 1

1 5

5, 5

2 pairs

gradeup

Ans. Let Numbers are N_1 & N_2

If HCF of 2 numbers is 12

Then, $N_1 = 12x$

$N_2 = 12y$

where x & y are coprime.

LCM = 12xy

$12xy = 180$

$xy = 15$

Now Find x & y such that their product is 15 & they are coprime to each other.

1×15

3×5

So, only 2 pairs are possible

If you want to calculate the numbers then replace 1 & 15 in place of x & y and you will get the first pair as (12, 180) & second pair by replacing (3 & 5) as (36, 60). So 2 pairs are possible

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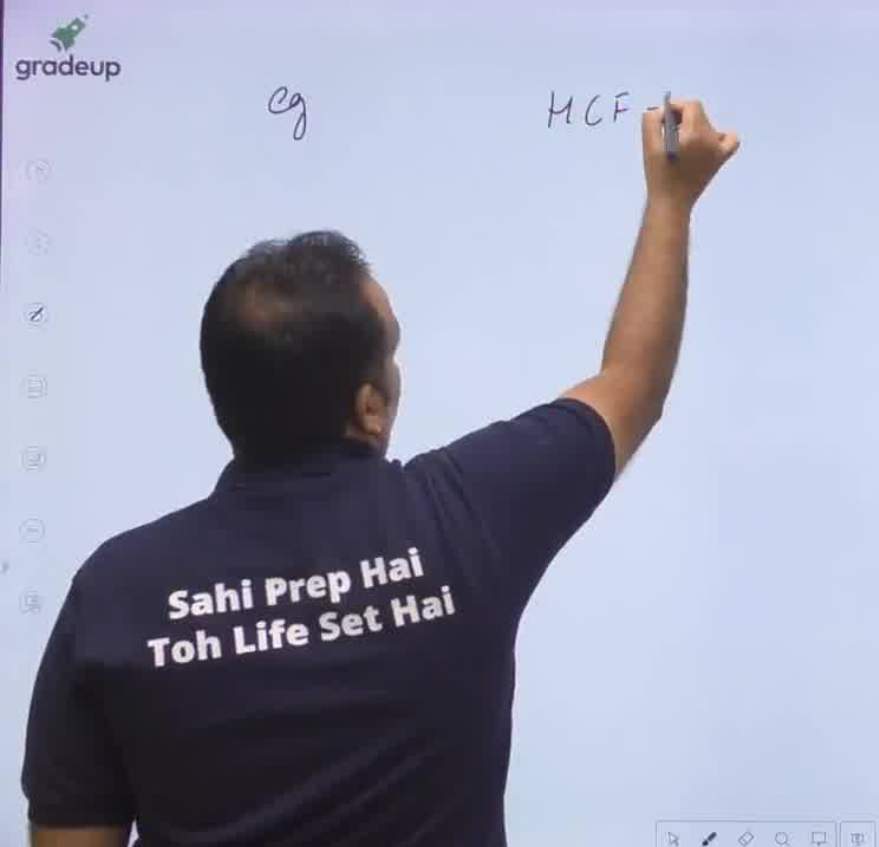
eg

MCF -



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eg HCF = 20

gradeup

eg HCF = 20 LCM

gradeup

eg HCF = 20 LCM = 1

gradeup

eg HCF = 20 LCM = 1680

How many pairs of no. are possible?:

= 20x

= 20y

= 20 × y ⇒ 1680

xy = 84

gradeup

eg HCF = 20 LCM = 1680

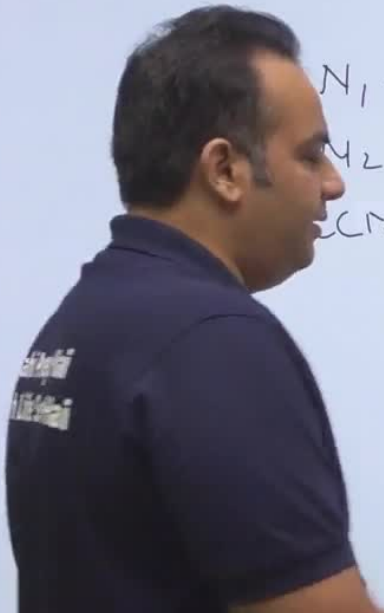
How many pairs of no. are possible?:

$N_1 = 20x$

$N_2 = 20y$

LCM $= 20 \times y \Rightarrow 1680$ 1, 84

$xy = 84$



gradeup

eg HCF = 20 LCM = 1680

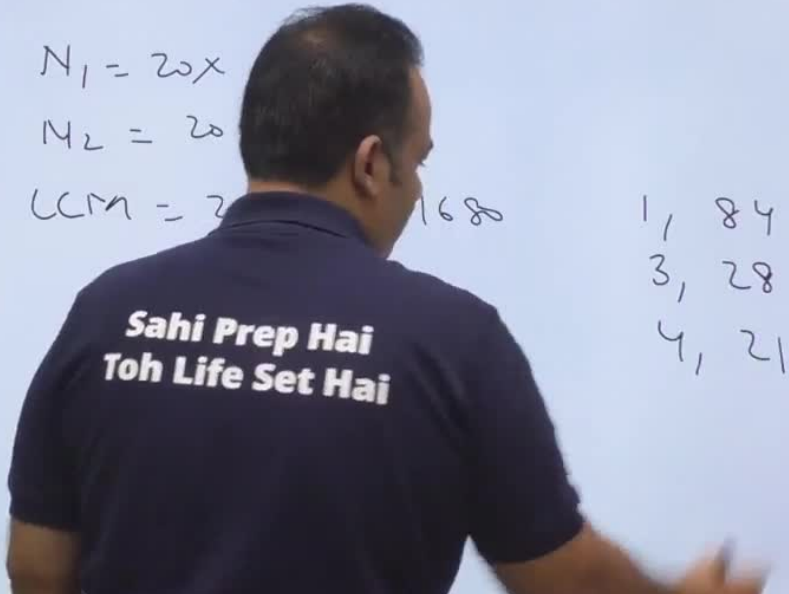
How many pairs of no. are possible?:

$N_1 = 20x$

$N_2 = 20$

LCM = 2 ... 1680

1, 84
3, 28
4, 21



gradeup

eg HCF = 20 LCM = 1680

How many pairs of no. are possible?:

$N_1 = 20x$

$N_2 = 20y$

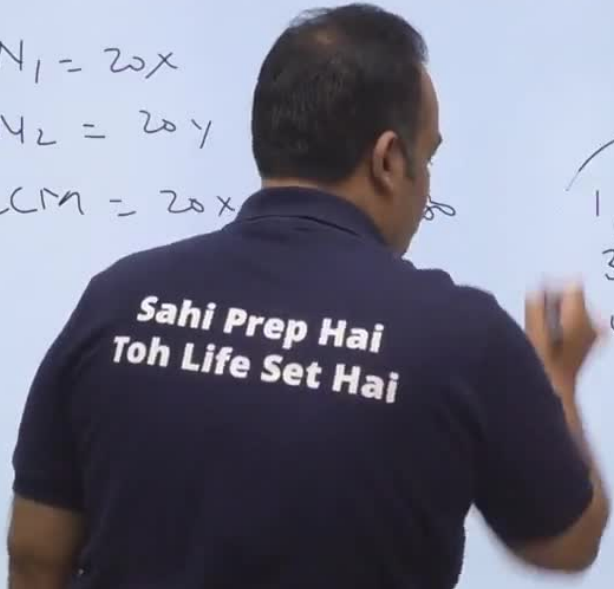
LCM = $20x$ ...

1, 84

3, 28

4, 21

7, 12



gradeup

eg HCF = 20 LCM = 1680

How many pairs of no. are possible?:

$N_1 = 20x$

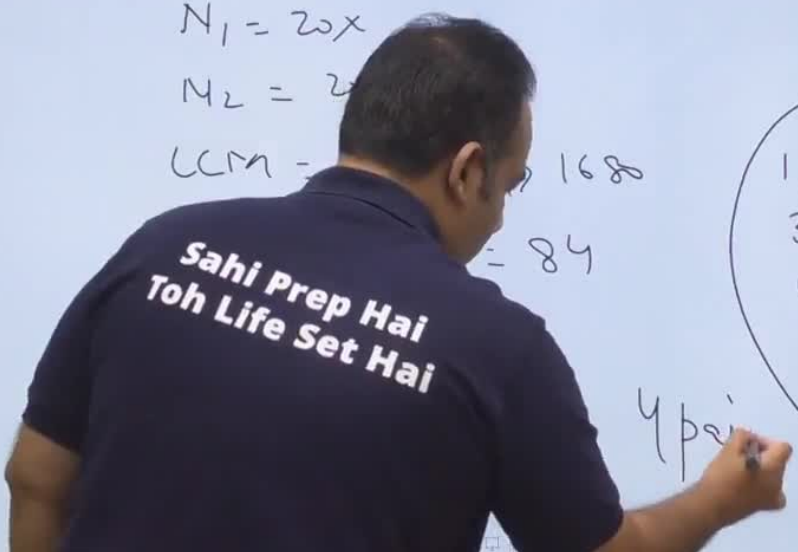
$N_2 = 2$

LCM = 1680

= 84

1, 84
3, 28
4, 21
7, 12

4 pai



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Eg10. The sum of two numbers is 1056 and their HCF is 66, find the number of such pair.

Ans. Let the numbers are N_1 & N_2

HCF of two numbers is 66

Then, $N_1 = 66x$

$N_2 = 66y$

where x & y are coprime numbers

$66x + 66y = 1056$

$66(x + y) = 1056$

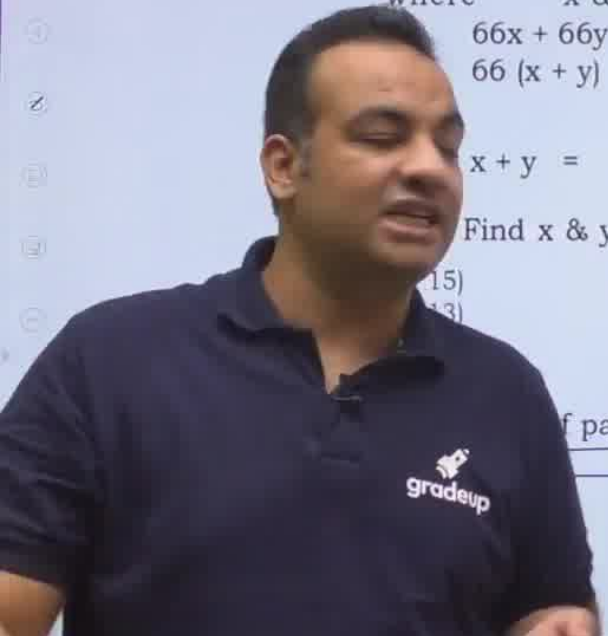
$x + y = \frac{\cancel{1056}^{16}}{\cancel{66}}$

Find x & y such that their sum is 16 & they are coprime to each other

15)

13)

f pairs = 4



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PRACTICE QUESTIONS

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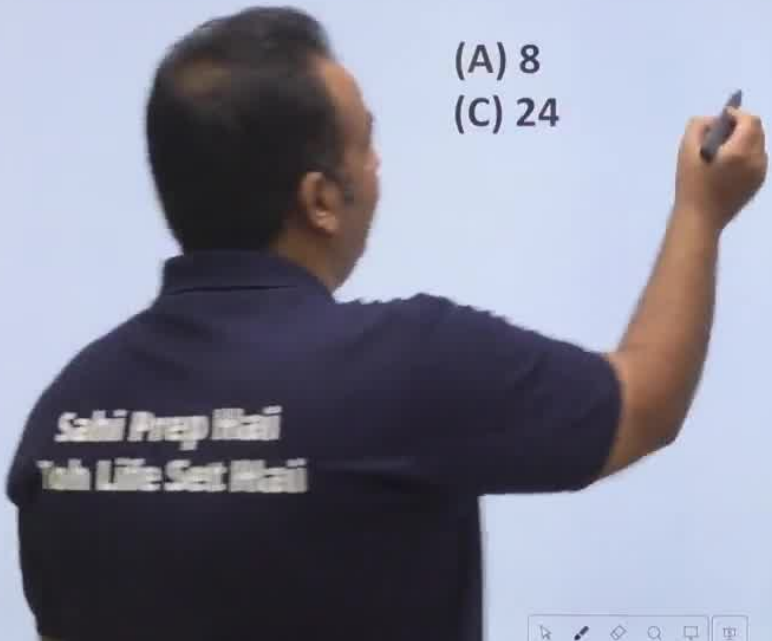
1. The LCM of three different numbers is 120. Which one of following can never be their HCF?

(A) 8
(B) 14
(C) 24
(D) 5



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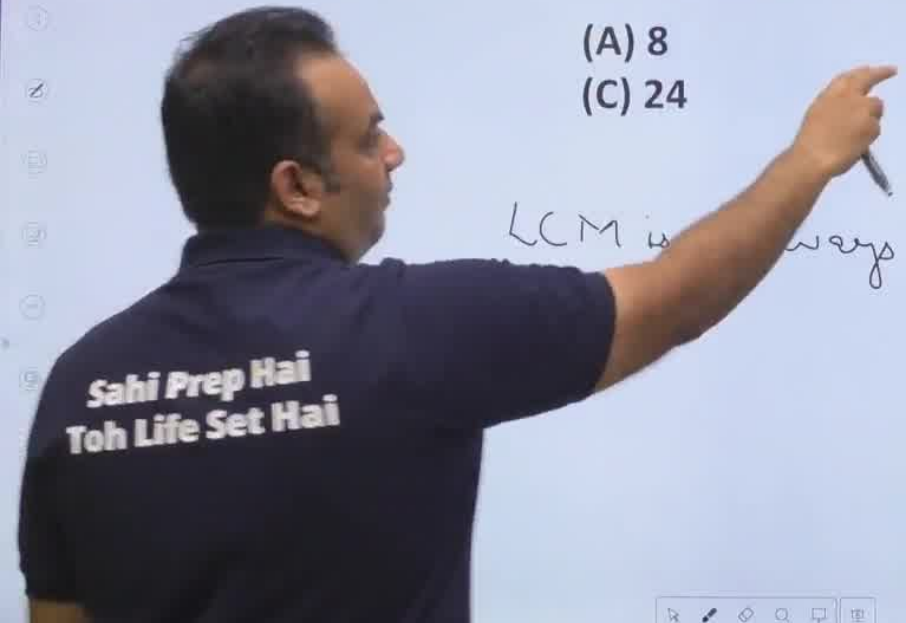
1. The LCM of three different numbers is 120. Which one of following can never be their HCF?

(A) 8
(B) 14
(C) 24
(D) 5

LCM is always a multiple of HCF



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2. The ratio of three number is 3:4:5 and their LCM is 2400, their HCF is:

(A) 40
(B) 80
(C) 120
(D) 200

$N_1 = 3x$

$N_2 = 4x$

$N_3 = 5x$

$LCM = 60x$

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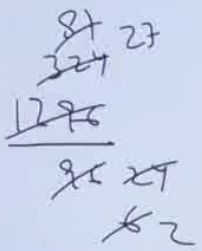
3. The HCF of two numbers is 96 and their LCM is 1296. If one of the number is 864 the other is

(A) 132 (B) 135

(C) 140 (D) Data inconsistent



HCF = 96

LCM = 1296

$N_1 = 864$

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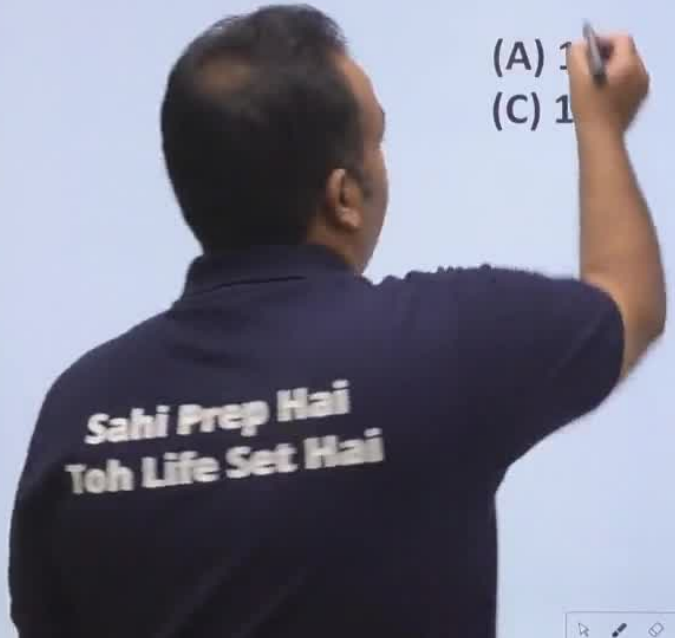
4. Product of two co-prime numbers is 117. Then their LCM is

(A) 1
(B) 9
(C) 1
(D) 39



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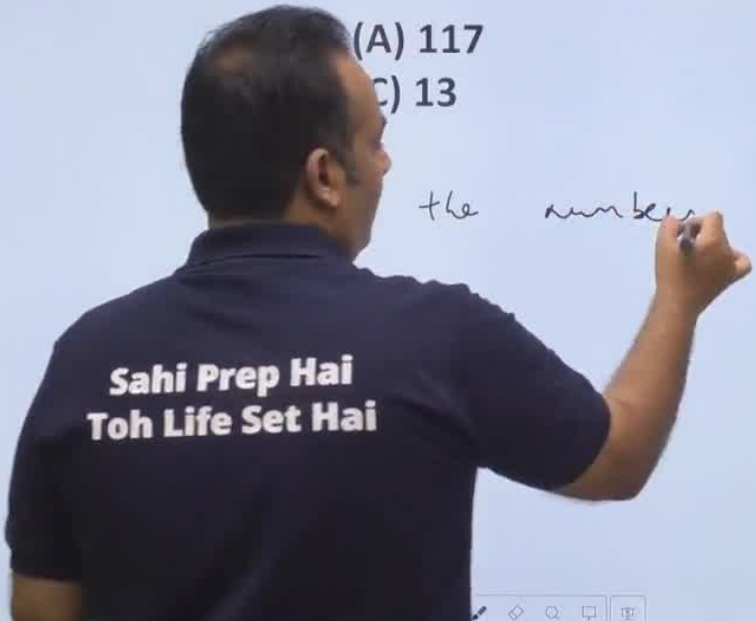
4. Product of two co-prime numbers is 117. Then their LCM is

(A) 117
(B) 9
(C) 13
(D) 39

the numbers



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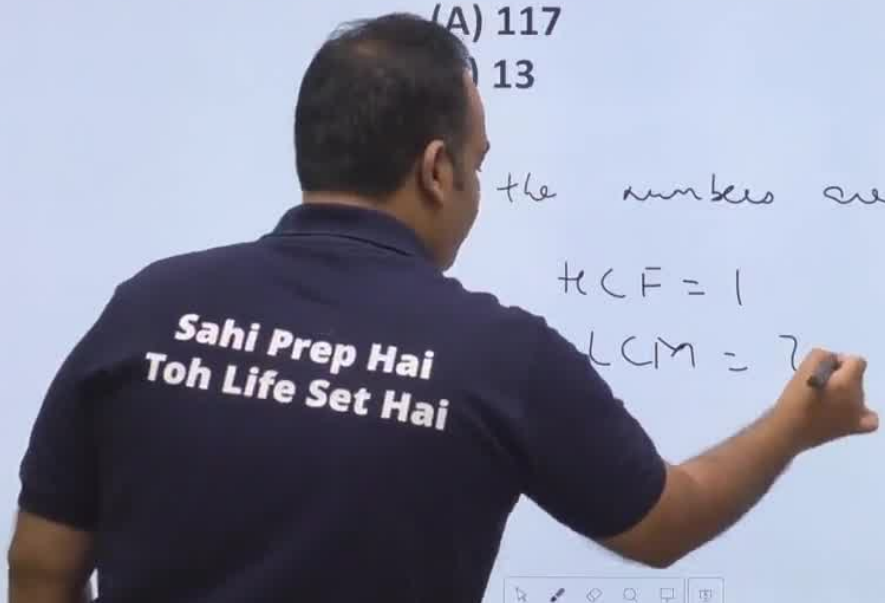
4. Product of two co-prime numbers is 117. Then their LCM is

(A) 117
(B) 9
(C) 13
(D) 39

the numbers are x & y

HCF = 1

LCM = ?



4. Product of two co-prime numbers is 117. Then their LCM is

(A) 117 (B) 9
(C) 13 (D) 39

Let the numbers are x & y

∴ LCM = 117 HCF = 1

LCM = 117 LCM = ?

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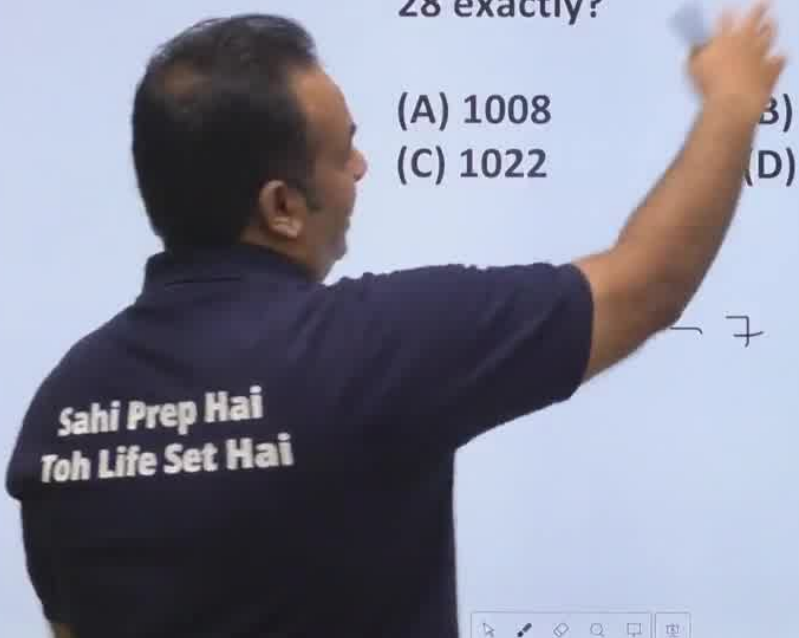
5. What is the smallest number which when diminished by 7 is divisible by 12, 16, 18, 21 and 28 exactly?

(A) 1008 (B) 1015
(C) 1022 (D) 1032

gradeup

5. What is the smallest number which when diminished by 7 is divisible by 12, 16, 18, 21 and 28 exactly?

(A) 1008
(B) 1015
(C) 1022
(D) 1032



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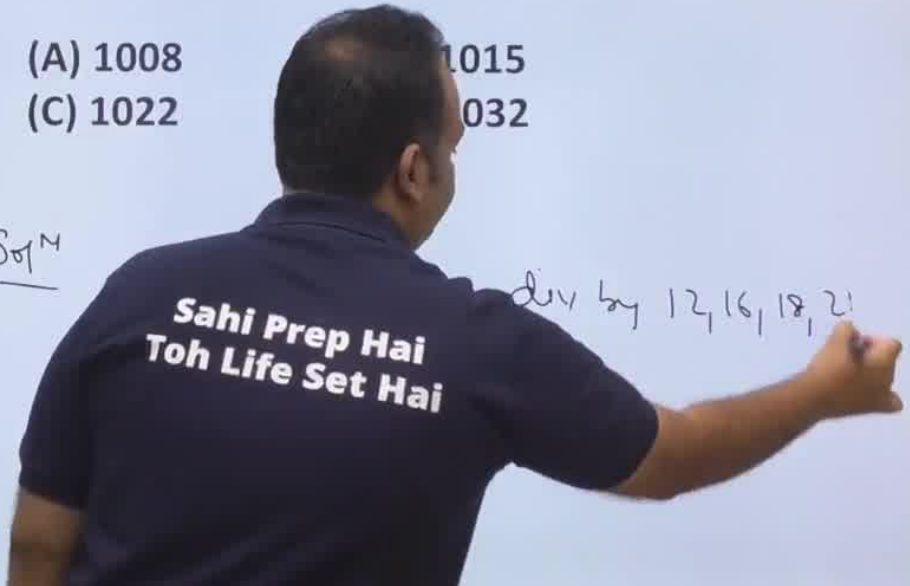
5. What is the smallest number which when diminished by 7 is divisible by 12, 16, 18, 21 and 28 exactly?

(A) 1008 (B) 1015
(C) 1022 (D) 1032

Soln

div by 12, 16, 18, 21



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5. What is the smallest number which when diminished by 7 is divisible by 12, 16, 18, 21 and 28 exactly?

(A) 1008
(B) 1015
(C) 1022
(D) 1032

Detailed Approach

$N-7 = LCM(12, 16, 18, 21, 28)$

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

$16 = 2^4$

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

$21 = 3^1 \cdot 7^1$

$28 = 2^2 \cdot 7^1$

$2^4 \cdot 3^2 \cdot 7^1$

$N - 7 = 1008$

$N = 1015$

Sol^N

LCM (12, 16, 18, 21 & 28)

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5. What is the smallest number which when diminished by 7 is divisible by 12, 16, 18, 21 and 28 exactly?

(A) 1008
(C) 1022

1015
1032

Detailed Approach

$N-7 = LCM(12, 16, 18, 21, 28)$

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

$16 = 2^4$

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

$21 = 3^1 \cdot 7^1$

$28 = 2^2 \cdot 7^1$

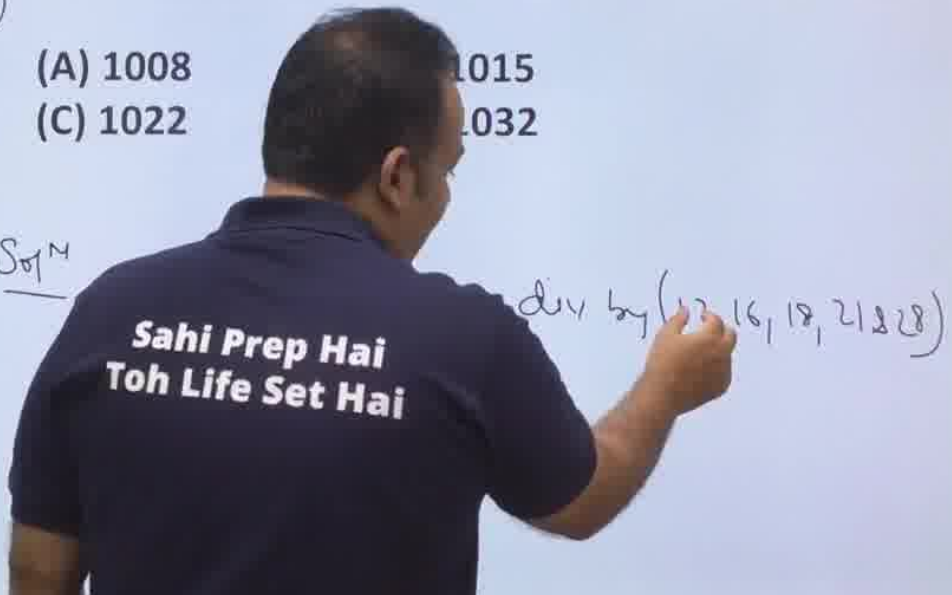
$2^4 \cdot 3^2 \cdot 7^1$

$N - 7 = 1008$

$N = 1015$

Soln

div by (12, 16, 18, 21 & 28)



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5. What is the smallest number which when diminished by 7 is divisible by 12, 16, 18, 21 and 28 exactly?

(A) 100[illegible]
(B) 1015
(C) 10[illegible]
(D) 1032

Detailed Approach

$N-7 = LCM(12, 16, 18, 21, 28)$

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

$16 = 2^4$

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

$21 = 3^1 \cdot 7^1$

$28 = 2^2 \cdot 7^1$

$2^4 \cdot 3^2 \cdot 7^1$

$N - 7 = 1008$

$N = 1015$

[illegible] $- 7 =$ div by $(12, 16, 18, 21 \& 28)$

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Ans. (b)

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Detailed Approach

N-7 = LCM

12
16
18

Soln

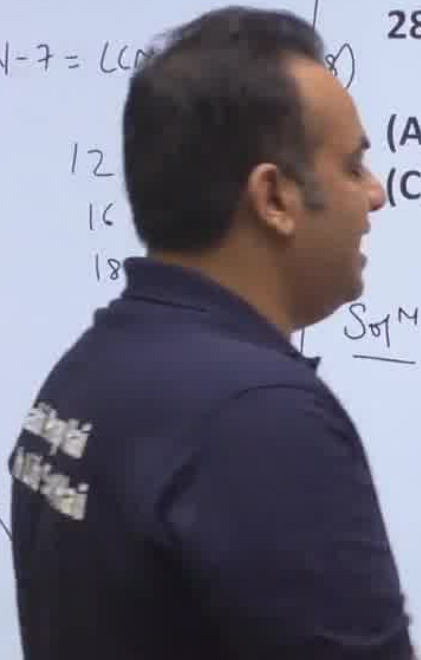
5. What is the smallest number which when diminished by 7 is divisible by 12, 16, 18, 21 and 28 exactly?

(A) 1008 (B) 1015
(C) 1022 (D) 1032

N − 7 = div by (12, 16, 18, 21 & 28)

N → even + 7

→ odd



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6. Two number which is greater than 29 and their HCF is 29 and LCM is 4147 sum of these number.

(A) 666
(B) 669
(C) 696
(D) 966

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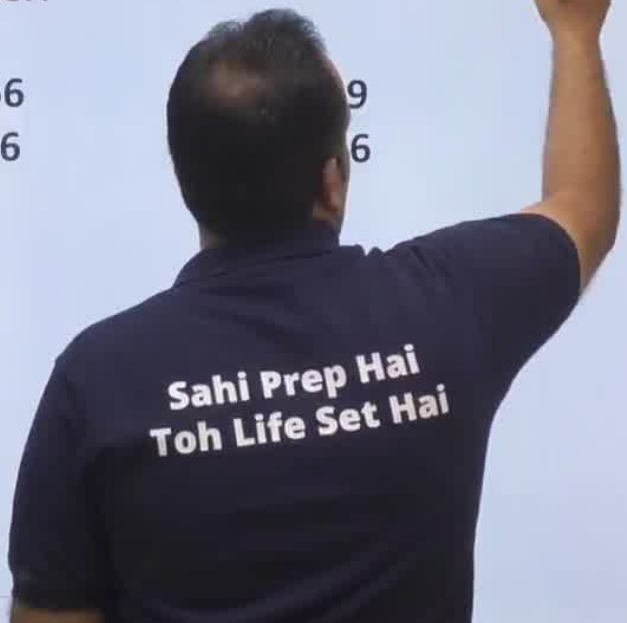
6. Two number which ~~is~~ are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666 9
(C) 696 6



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Detailed App

$N_1 = 29x$

$N_2 = 29y$

LCM $= 29xy$

$29xy = 414$

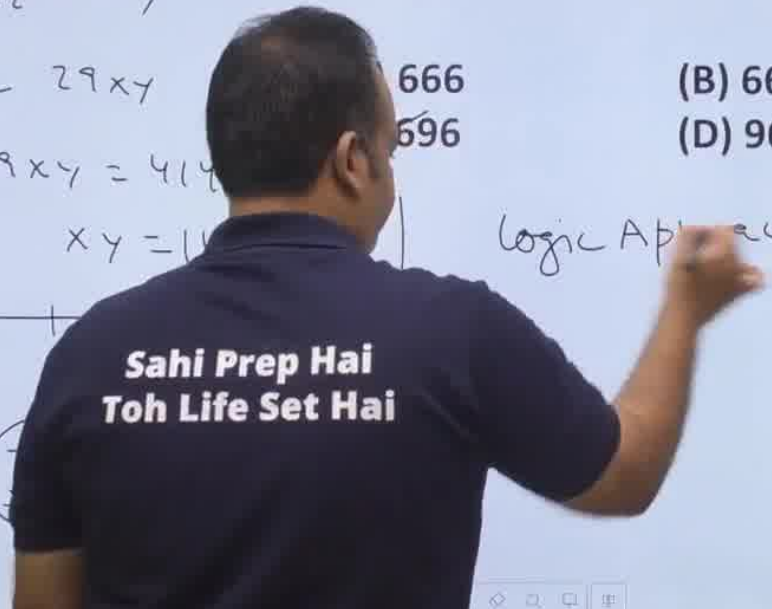
$xy =$

6. Two number which is/are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666 (B) 669

(C) 696 (D) 966

Logic Approach



gradeup

Detailed App

$N_1 = 29x$

$N_2 = 29y$

LCM = 29

$29xy$

x

6. Two number which ~~is~~ are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666
(B) 669
(C) 69
(D) 966

Logical Approach

gradeup

Detailed App

$N_1 = 29x$

$N_2 = 29y$

$LCM = 29xy$

$29xy =$

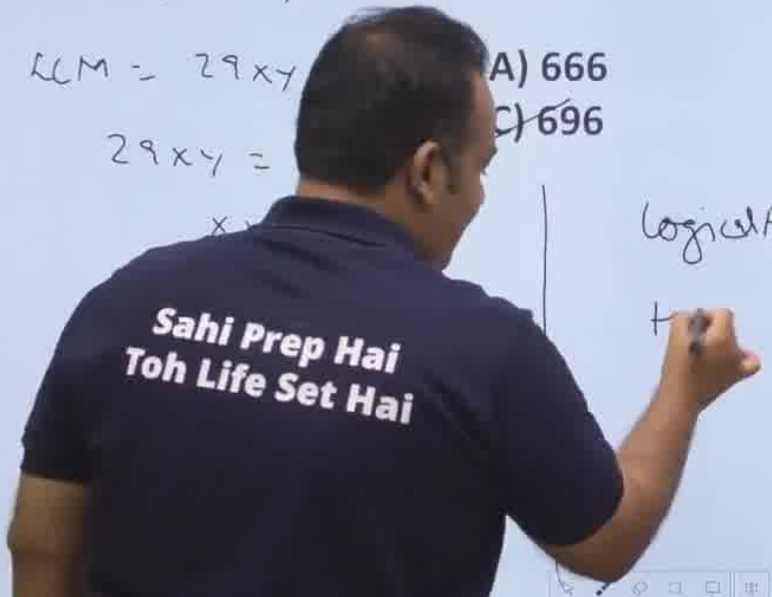
x

6. Two number which ~~is~~ are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666
~~C) 696~~
(B) 669
(D) 966

Logical Approach

H



gradeup

Detailed App

$N_1 = 29x$

$N_2 = 29y$

$LCM = 29xy$

$29xy = 4147$

$xy =$

6. Two number which is/are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

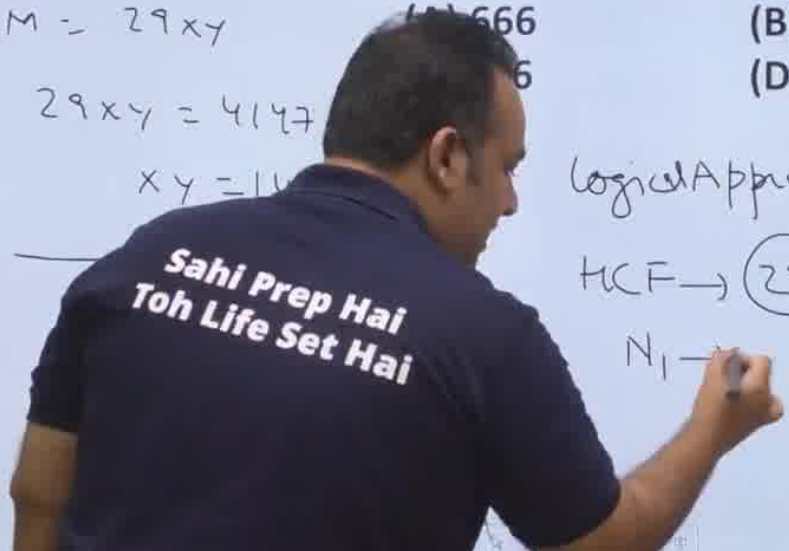
(A) 666 (B) 669

(C) 6 (D) 966

Logical Approach

HCF → 29

N_1 →



gradeup

Detailed App

$N_1 = 29x$

$N_2 = 29y$

LCM = $29xy$

$29xy = 4147$

$xy = (4$

6. Two number which is/are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666 (B) 669

(D) 966

Logical Approach

HCF → 29

$N_1 \rightarrow 29x$

$N_2 \rightarrow 29x$

Sum

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Detailed App

$N_1 = 29x$

$N_2 = 29y$

LCM $= 29xy$

$29xy = 4147$

$xy = 143$

$1 \cdot 143$

$11 \cdot 13$

319

6. Two number which are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666
(B) 669
(C) 696
(D) 966

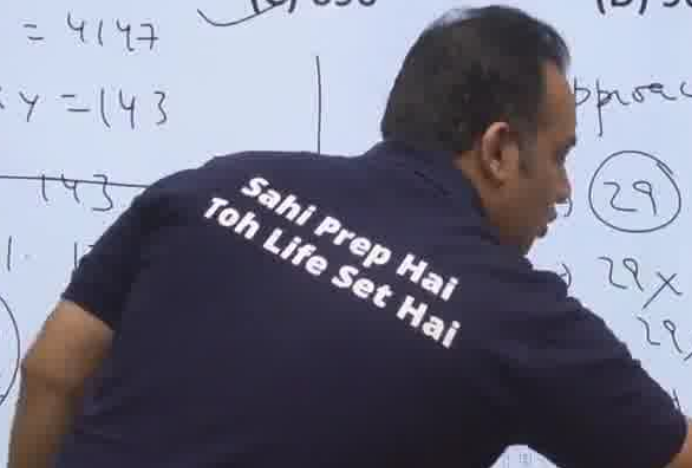
pproach

29

29x

29x

multiple of



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Detailed App

$N_1 = 29x$

$N_2 = 29y$

xy

$= 4147$

$xy = 143$

6. Two number which is/are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666
(B) 669
(C) 696
(D) 966

Logical Approach

HCF → 29

$N_1 \rightarrow 29x$

$N_2 \rightarrow 29x$

Sum → multiple of 29

gradeup

Detailed App

$N_1 = 29x$

$N_2 = 29y$

LCM = $29xy$

$29xy = 414$

$xy = 14$

6. Two number which is/are greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(B) 669

(D) 96

Logical App

$N_1 \rightarrow 29x$

$N_2 \rightarrow 29x$

Sum → multiple of 29

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Detailed App

$N_1 = 29x$

$N_2 = 29y$

LCM = $29xy$

$29xy = 414$

$xy = (14)$

6. Two number which is greater than 29 and their HCF is 29 and LCM is 4147. Sum of these number.

(A) 666

(B) 669

(D) 966

Logical Approa

$N_2 \rightarrow 29x$

Sum → multiple of 29

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Next Session

7. What least number must be subtracted from 1936 so that the resulting number when divided by 9, 10 and 15 will leave in each case the same remainder 7?

(A) 37
(B) 36
(C) 39
(D) 30

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8. The LCM of two number is 495 and HCF is 5. If sum of these two number is 100. Then their difference is:

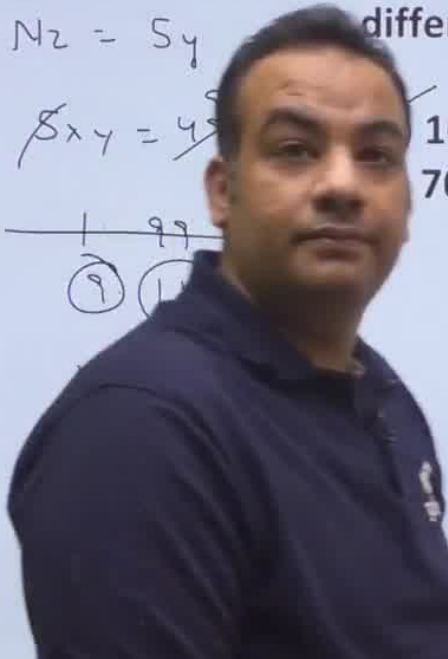
$N_1 = 5x$

$N_2 = 5y$

$5xy = 495$

(A) 10 (B) 46

70 (D) 90



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9. The H.C.F and L.C.M of two numbers are 7 and 140 respectively. If these numbers are between 20 and 45 then sum of these number is?

$N_1 = 7x$

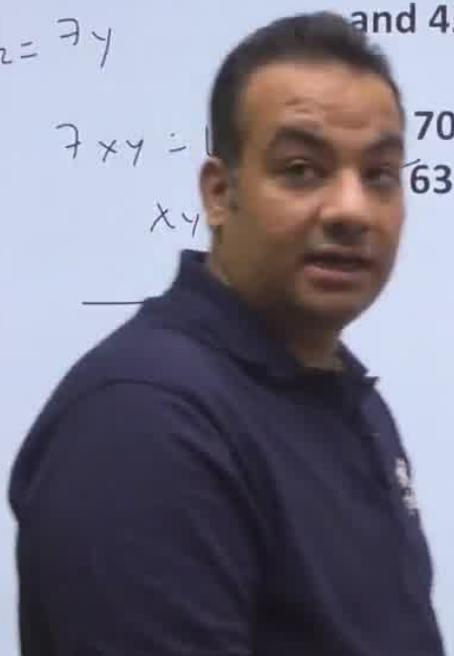
$N_2 = 7y$

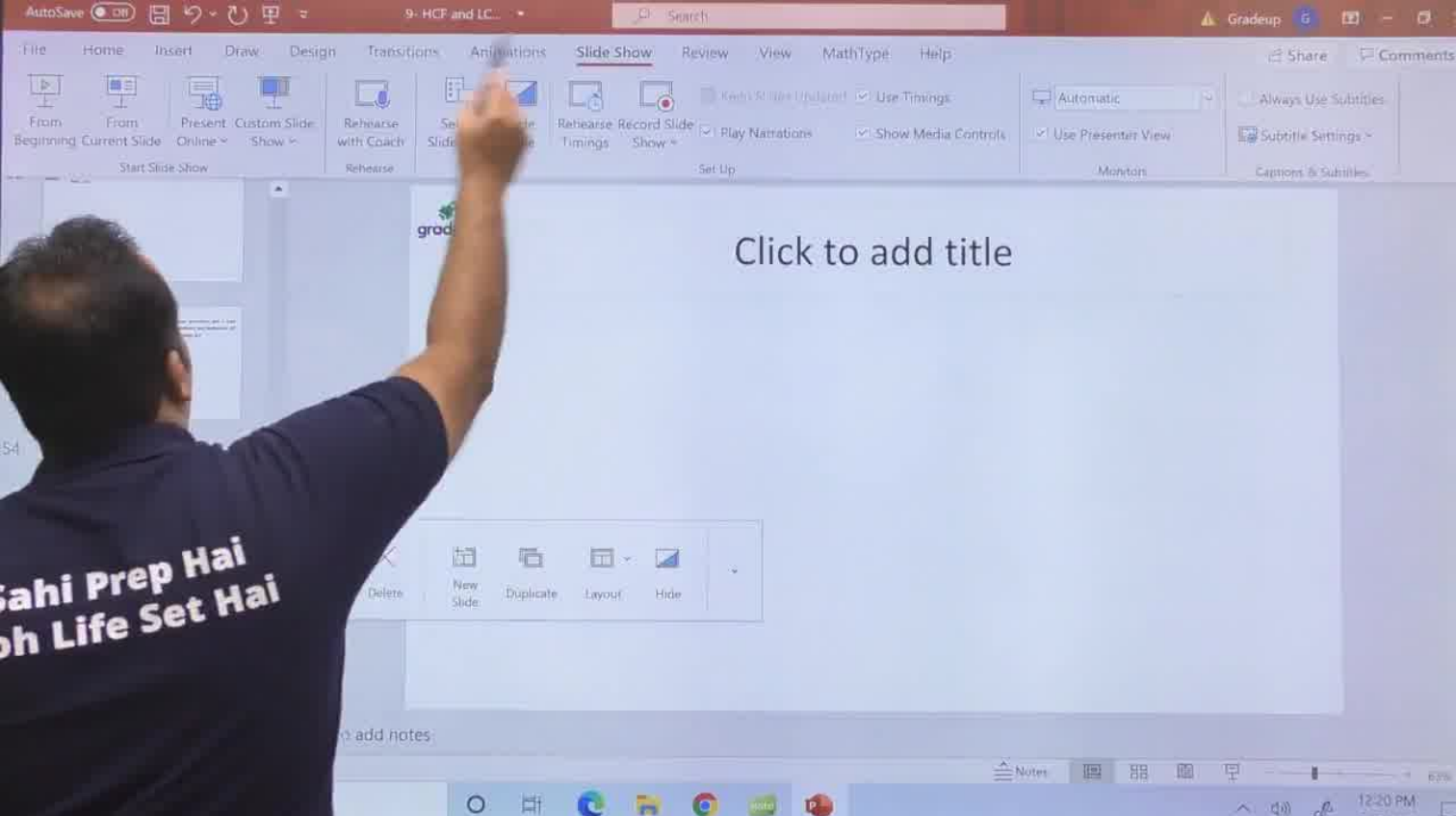
$7xy =$

xy

70 (B) 77

63 (D) 56

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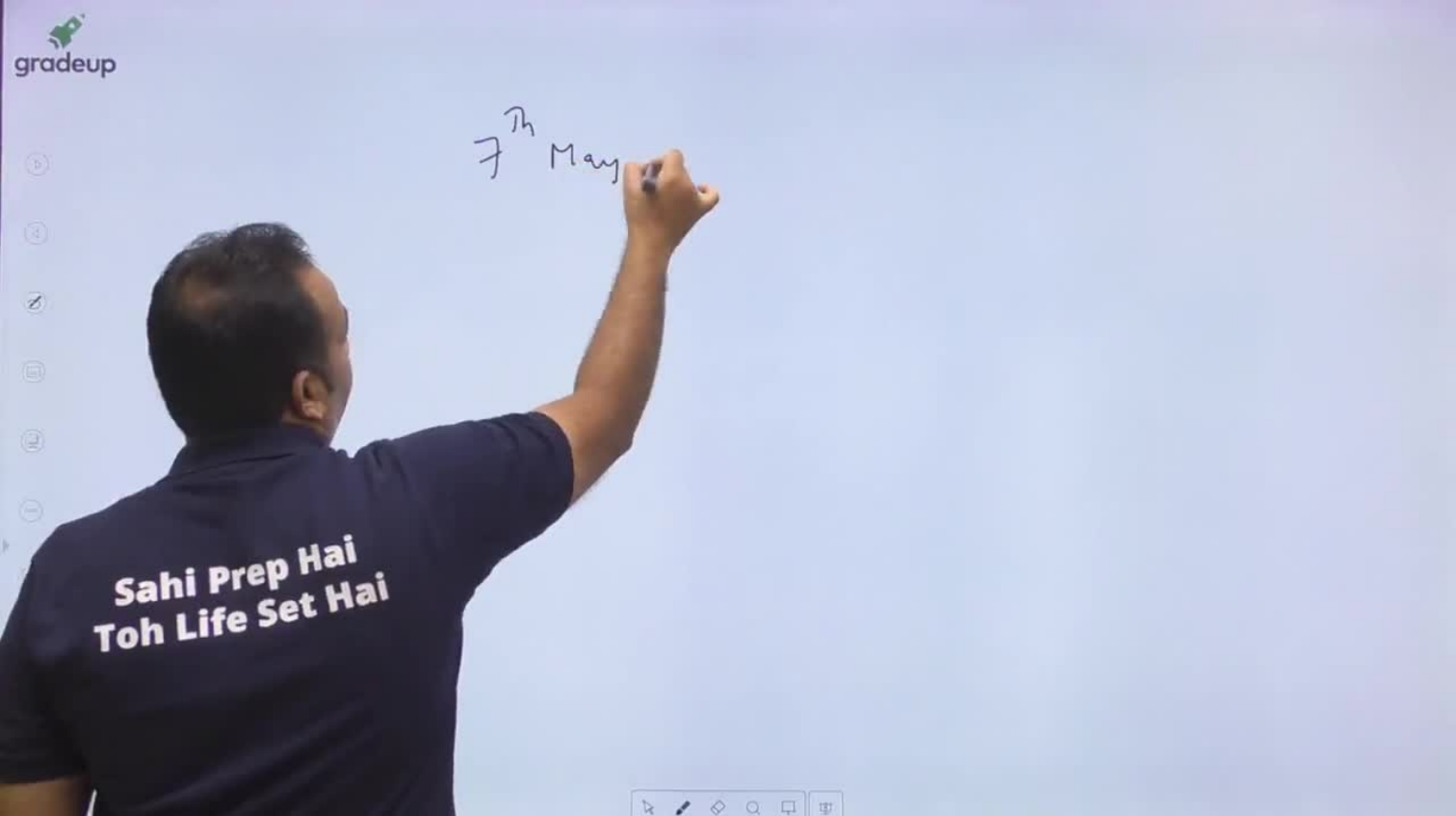
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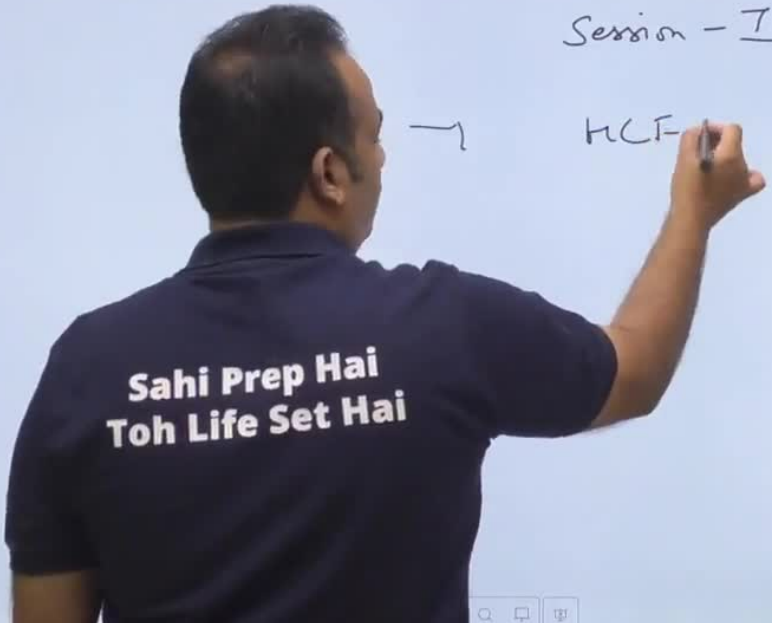
7th May → HCF & LCM

Session - I

→ HCF-



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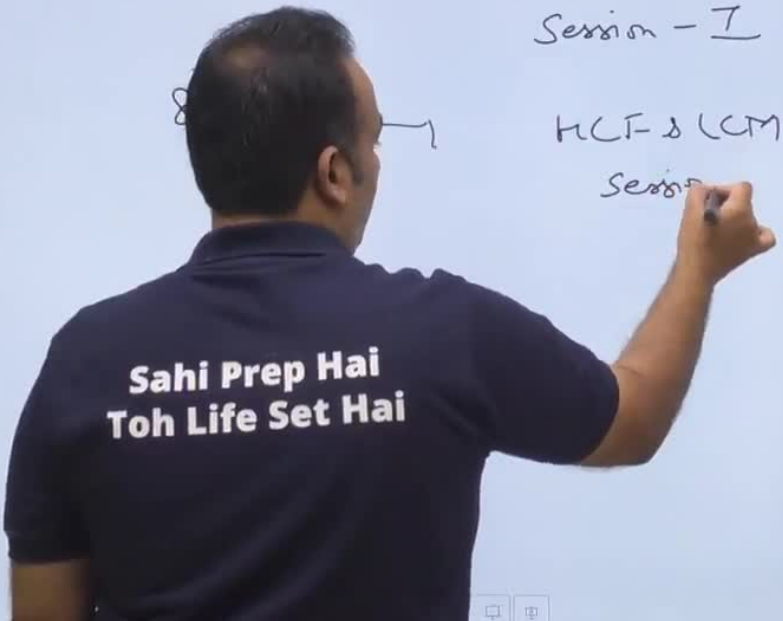
7th May → HCF & LCM

Session - I

8 → HCF & LCM

Sessio



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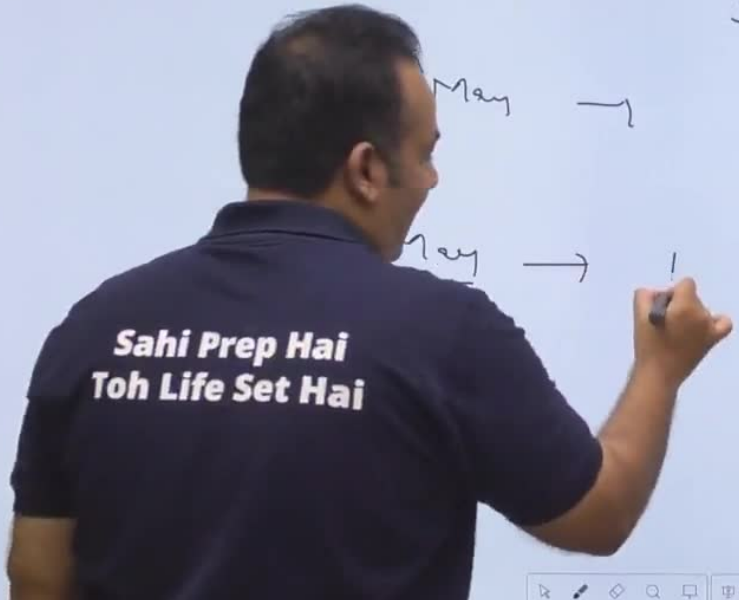
7th May → HCF & LCM
Session - I

May → HCF & LCM
Session - II

May → I



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7^{th} May → HCF & LCM
Session - I

8^{th} May → HCF & LCM
Session - II

9^{th} May → DOUBT SESSION

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7th May → HCF & LCM
Session - I

8th → HCF & LCM
Session - II

→ DOUBT SESSION

Th

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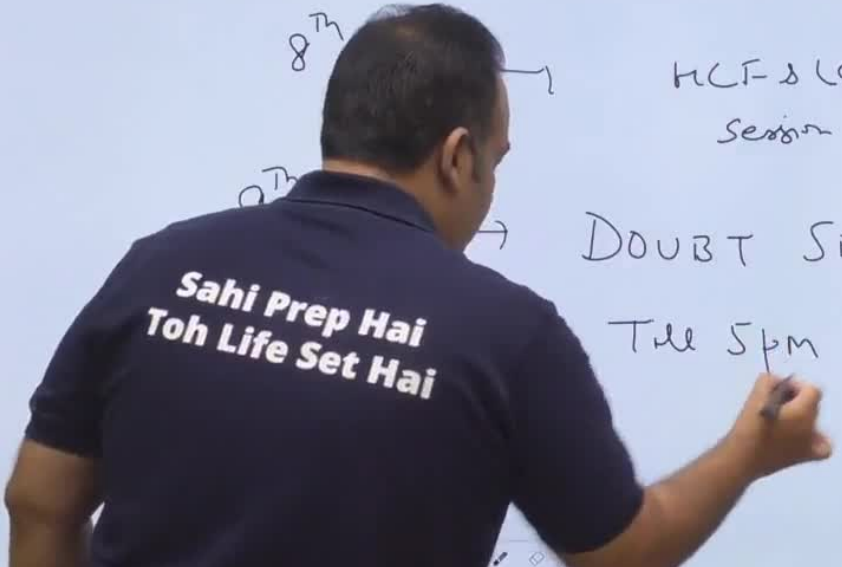
7th May → HCF & LCM
Session - I

8th → HCF & LCM
Session - II

→ DOUBT SESSION

Till 5pm



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10. The sum of two numbers is 36 and their HCF and LCM are 3 and 105 respectively. The sum of the reciprocals of two numbers.

(A) 2/35
(B) 3/25
(C) 4/35
(D) 2/25

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11. If the HCF and LCM of two consecutive (positive) even numbers be 2 and 84 respectively, then the sum of the numbers is

(A) 30
(B) 26
(C) 14
(D) 34

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12. The HCF (GCD) of a, b is 12, a, b are positive integers and a > b > 12. The smallest values of (a, b) are respectively.

(A) 12, 24
(B) 24, 12
(C) 24, 36
(D) 36, 24

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13. Let x be the smallest number which when added to 2000 makes the resulting number divisible by 12, 16, 18 and 21. The sum of the digits of x is.

(A) 6
(B) 5
(C) 7
(D) 4

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14. Let x be the least number, which when divided by 5, 6, 7 and 8 leaves a remainder 3 in each case but when divided by 9 leaves remainder 0. The sum of digits of x is

(A) 24
(B) 21
(C) 22
(D) 18

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15. Find the HCF of :

$\left(3^{3^{333}}+1\right)$ and $\left(3^{3^{334}}+1\right)$

(A) 2

(B) 1

(C) $3^{3^{333}}+1$

(D) 3

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16. Pair of two number whose product is 300 and their H.C.F is 5. No of such pair is:

(A) 2 (B) 3
(C) 4 (D) Can't be determined

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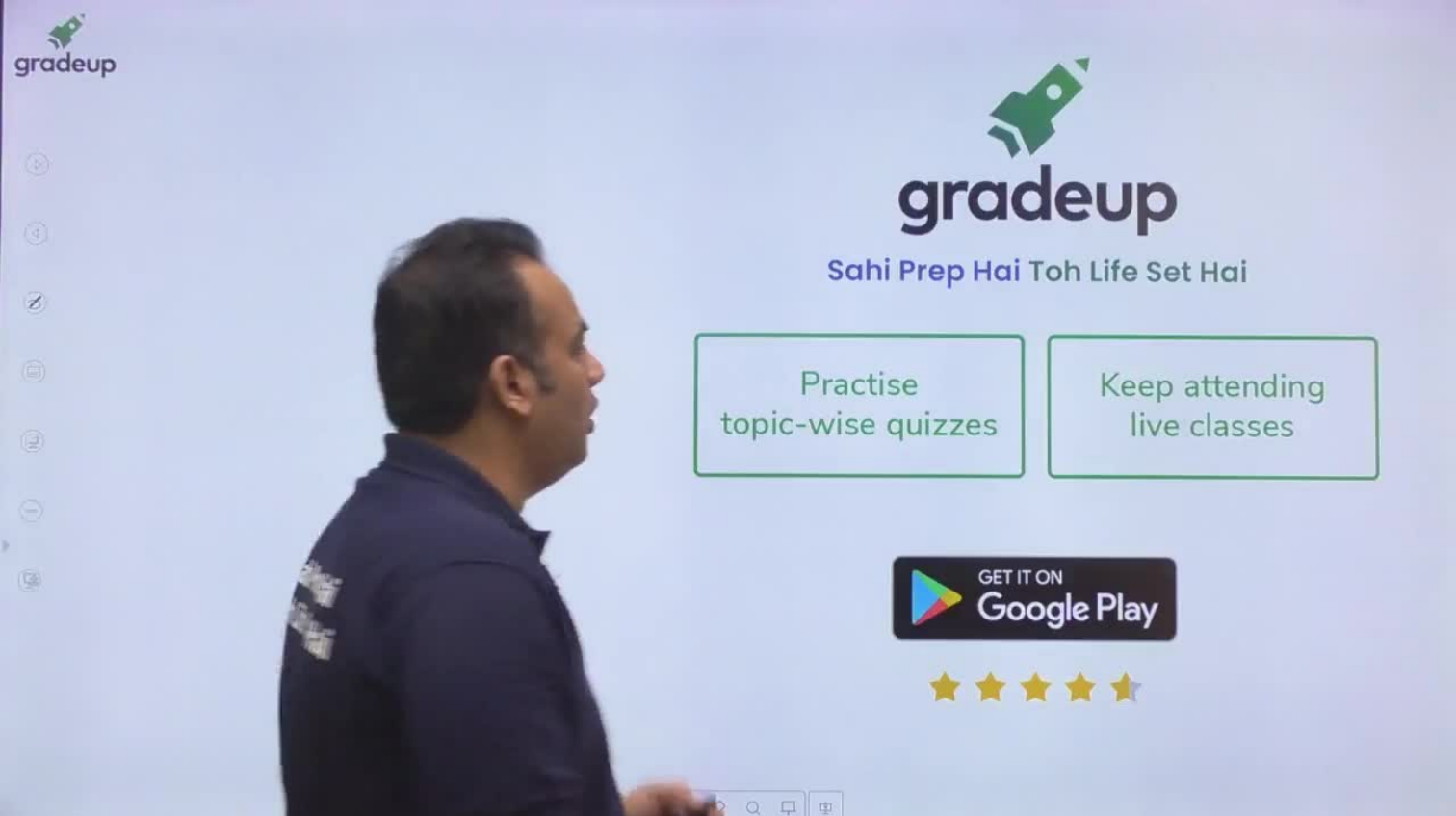
18. The H.C.F of 3240, 3600 and a third number is 36 and their LCM is $2^4 \times 3^5 \times 5^2 \times 7^2$. Find the third number?

(A) $2^2 \times 3^5 \times 7^2$ (B) $2^2 \times 5^3 \times 7^2$

(C) $2^5 \times 5^2 \times 7^2$ (D) $2^3 \times 3^5 \times 7^2$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