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# REMAINDERS-2



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# REMAINDERS-2





R



## REMAINDERS-2

1

2

3

4

5

6

7

8

$$Q.3 \quad \frac{111111}{37} \quad (100 \text{ digits})$$

$$Q.7 \quad \frac{50^{10}}{11}$$

$$Q.8 \quad \frac{(50^2)^5}{11}$$

## Practice Questions

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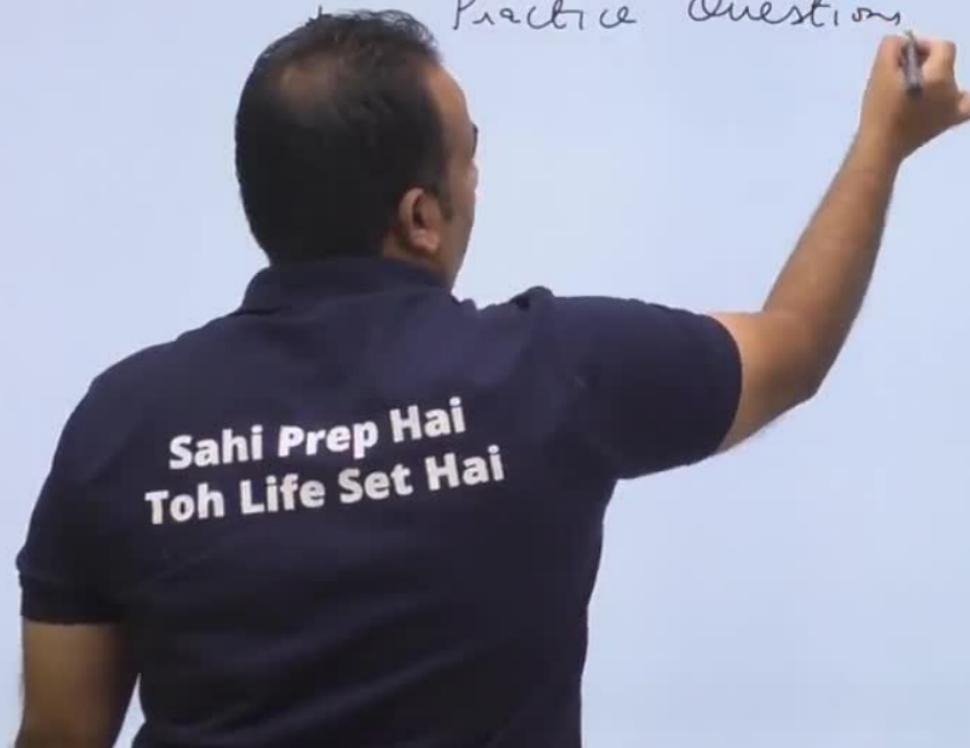
Notes

Agenda



# Agenda

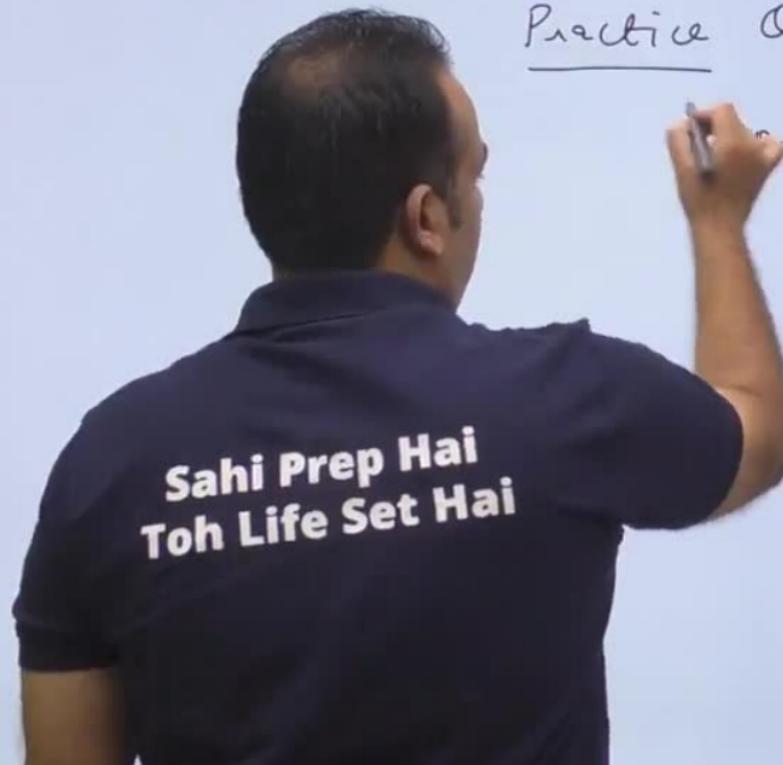
Practice Questions



# Agenda

Practice Questions

(Questions)



# Agenda

\* Practice Questions  
(10 Questions) → (38-40 min)

\*  $\frac{x^n - y^n}{x - y}$

Success

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# Agenda

\* Practice Questions  
Questions) → (38-40 min)

\*

$$\frac{x^n - y^n}{\Rightarrow}$$

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Successivedivide

# Agenda

Practice Questions

(10 Questions)

→ (38-40 min)

$$\stackrel{?}{=} \frac{x^n - y^n}{x - y}$$

Solved division

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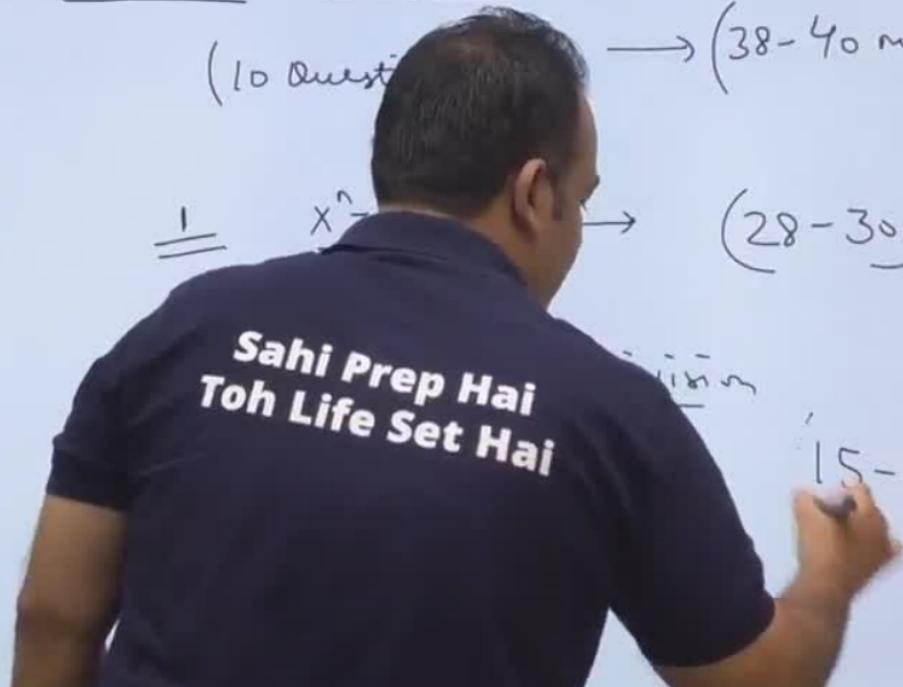
## Agenda

- \* Practice Questions  
(10 Que) → (38-40 min)
- \*  $\frac{1}{x^n}$  → (28-30) min

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# Agenda

- \* Practice Questions  
(10 Quest) → (38-40 min)
- \*  $\hat{=}$  → (28-30) min



## Agenda

Practice Questions

(10 Questions)

→ (38-40 min)

1 =  $x^n - y^n$  → (28-30) min

2 = Successive division  
→ (18-20) min

## Agenda

} \* Practice Questions  
(10 Questions) → (38-40 min)

=  $x^n - y^n$  → (28-30) min

Successive division  
→ (18-20) min

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## Agenda

### \* Practice Questions

(10 Questions)

→ (38-40 min)

\*

$$\stackrel{1}{=} \underline{\underline{x^n - y^n}} \rightarrow (28-30) \text{ min}$$

2

Successive division

→ (18-20) min

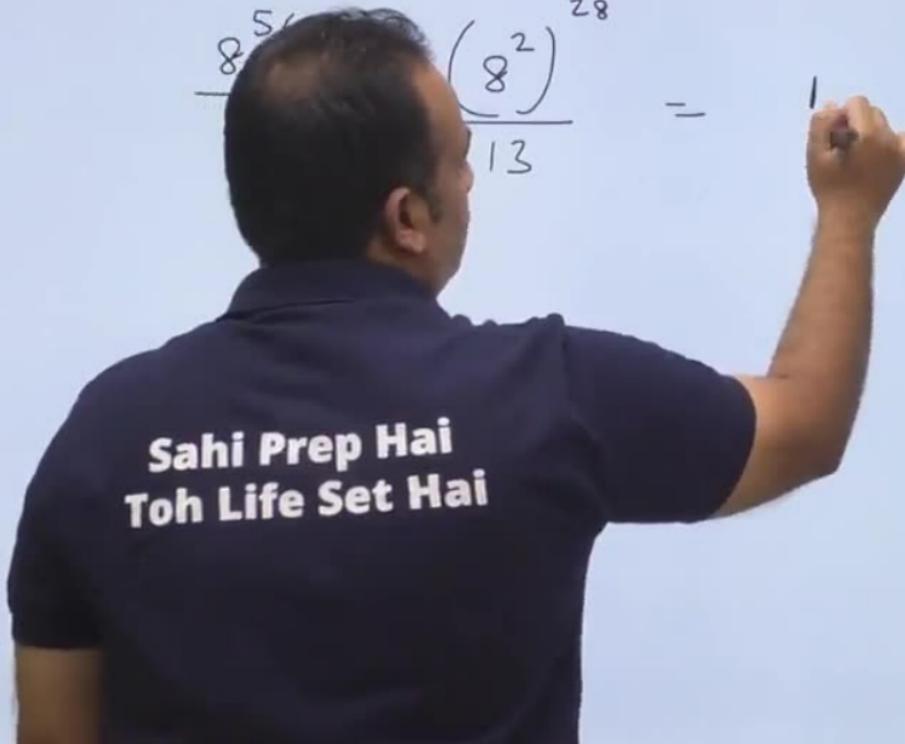
Q.1

$$\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$$



Q.1       $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\frac{8^{56} \times (8^2)^{28}}{13} = 1$$



Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\frac{6^{12}}{13} R = 1 \quad \left| \begin{array}{c} 8^{56} \\ \hline 1 \end{array} \right. \quad \left( \frac{8^2}{13} \right)^{28} - 1$$

$$\cancel{\left( 8^{12} \right)} \cdot 6^8 = \frac{\left( 6^2 \right)^4}{13}$$

Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\frac{6^{12}}{13} R = 1$$
$$\frac{8^{56}}{13} \Rightarrow \left(\frac{8^2}{13}\right)^{28}$$
$$\frac{6^{248}}{13} \rightarrow \cancel{\left(\frac{6^{12}}{13}\right)^{20}}$$
$$\frac{\left(6^2\right)^4}{13} = \frac{\left(-3\right)^4}{13}$$

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Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\frac{6^{12}}{13} \quad \frac{8^{56}}{13} \Rightarrow \left( \frac{8^2}{13} \right)^{28} = 1$$

$$\frac{6^{248}}{13} \rightarrow \frac{\cancel{(6^2)^{12}} \cdot 6^8}{13} = \frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = \textcircled{3}$$

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Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\frac{6^{12}}{13} R=1 \quad \left| \begin{array}{l} \frac{8^{56}}{13} \Rightarrow (8^2)^{28} \\ \hline 6^{248} \end{array} \right. - 1$$

$$\frac{(6^2)^{12} \cdot 6^8}{13} = \frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = \boxed{3}$$

$$= \frac{3^{248}}{13}$$

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Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\frac{6^{12}}{13} \quad R = 1$$

$$\frac{8^{56}}{13} \Rightarrow \left(\frac{8^2}{13}\right)^{28}$$

$$\frac{6^{248}}{13} = \frac{(6^2)^{124}}{13} = \frac{(-3)^{124}}{13} = \textcircled{3}$$

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$$= ?^3$$

Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\begin{aligned} \frac{6^{12}}{13} R = 1 & \left| \begin{array}{l} \frac{8^{56}}{13} \Rightarrow \left(\frac{8^2}{13}\right)^{28} \\ \frac{6^{248}}{13} \rightarrow \left(\cancel{6}^{\cancel{12}}\right)^{20} = \frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = \textcircled{3} \\ \frac{9^{12}}{13} = \left(\cancel{3}^{\cancel{3}}\right)^{82} \end{array} \right. \end{aligned}$$

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Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

$$\frac{6^{12}}{13} \stackrel{56}{=} \Rightarrow \left(\frac{8^2}{13}\right)^{28}$$

$$\left(\frac{(-3)^2}{13}\right)^8 = \frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = \textcircled{3}$$

$$\frac{\left(\frac{(-3)^2}{13}\right)^{123}}{13} = \frac{3^{246}}{13} = \frac{\cancel{(3^2)^{82}}}{\cancel{13}} = 1$$

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Q.1  $\frac{1 \times 3}{8^{56} \times 6^{248}} ;$

$$\frac{6^{12}}{13} R=1$$

$$\frac{8^{56}}{13} \Rightarrow \left( \frac{8^2}{1} \right)^{28}$$

$$\frac{6^{248}}{13} \rightarrow \left( \frac{6^2}{1} \right)^{124}$$

$$\frac{9^{123}}{17}$$

$$\frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = 3$$

$$= \frac{(3^3)^{82}}{13} = 1$$

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Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

Rem = 1

$$\frac{6^{12}}{13} \quad R = 1 \quad \Rightarrow \quad \left( \frac{8^2}{13} \right)^{28} = 1$$

$$\cancel{\left( \frac{8^{12}}{13} \cdot 5^8 \right)} = \frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = 3$$

$$\frac{1}{13} = \frac{3^{245}}{13} = \cancel{\left( \frac{8^3}{13} \right)^{82}} = 1$$

Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

Rem = 1

$$\frac{6^{12}}{13} \quad R = 1$$

$$\left( \frac{8^{56}}{13} \right)^{28} = 1$$

$$\frac{6^{248} \times 6^8}{13} = \frac{(6^2)^{123}}{13} = \frac{(-3)^{123}}{13} = 3$$

$$\frac{3^{248}}{13} = \frac{(-3)^{82}}{13} = 1$$

Q.1  $\frac{1 \times 3 \times 1}{8^{56} \times 6^{248} \times 9^{123}}$

Rem = 1

$$\frac{6^{12}}{13} \quad R = 1$$

$$- 8^{56} \cdot \left( \frac{(8^2)^{28}}{13} \right) = 1$$

$$\frac{\cancel{(6^{12})} \cdot 6^8}{13} = \frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = \textcircled{3}$$

$$\frac{1}{13} = \frac{3^{248}}{13} = \frac{\cancel{(3^3)^{82}}}{13} = 1$$

Q.1  $\frac{8^{56} \times 3^{248} \times 9^{123}}{13}$

Rem = 1

$$\frac{8^{56}}{13} \Rightarrow \left(\frac{8^2}{13}\right)^{28} = 1$$

$$\frac{6^{248}}{13} \rightarrow \left(\cancel{\frac{6^{12}}{13}} \cdot 6^8\right) = \left(\frac{6^2}{13}\right)^4 = \left(\frac{-3}{13}\right)^4 = 3$$

$$\frac{9^{123}}{13} = \left(\frac{3^3}{13}\right)^{123} = \frac{3^{246}}{13} = \left(\cancel{\frac{3^2}{13}}\right)^{82} = 1$$

Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

Rem = 1

$$\frac{6^{12}}{13} \quad R = 1$$

$$\left| \begin{array}{r} 8^{56} \\ \hline 13 \\ \left(8^2\right)^{28} \\ \hline 13 \end{array} \right. - 1$$

$$\frac{\cancel{(8^{12})}^{10} \cdot 6^8}{13} = \frac{(6^2)^4}{13} = \frac{(-3)^4}{13} = 3$$

$$\frac{2^{123} - 3^{241}}{13} = \frac{\cancel{(2^3)}^{82}}{13} = 1$$

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Q.1  $\frac{8^{56} \times 6^{248} \times 9^{123}}{13}$

Rem = ?

$$\frac{6^{12}}{13} \quad R = 1$$

$$\frac{8^{56}}{13} \Rightarrow \left(\frac{8^2}{13}\right)^{28} = 1$$

$$\frac{6^{248}}{13} \rightarrow \left(\cancel{\frac{6^{12}}{13}} \cdot 6^8\right) =$$

$$\frac{9^{123}}{13} = \left(\frac{3^2}{13}\right)^{123}$$

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(3)

= 1

Q.2

$$\frac{1! + 2! + 3! + 4! + \dots + 100!}{18}$$

Q.2

$$\frac{1! + 2! + 3! + 4! + \dots + 100!}{18}$$

$$\frac{1!}{18} \quad R = 1 \quad 9$$

$$\frac{2!}{18} \quad R = 2$$

$$\frac{3!}{18} \quad R = 6$$

$$\frac{4!}{18} \quad R =$$

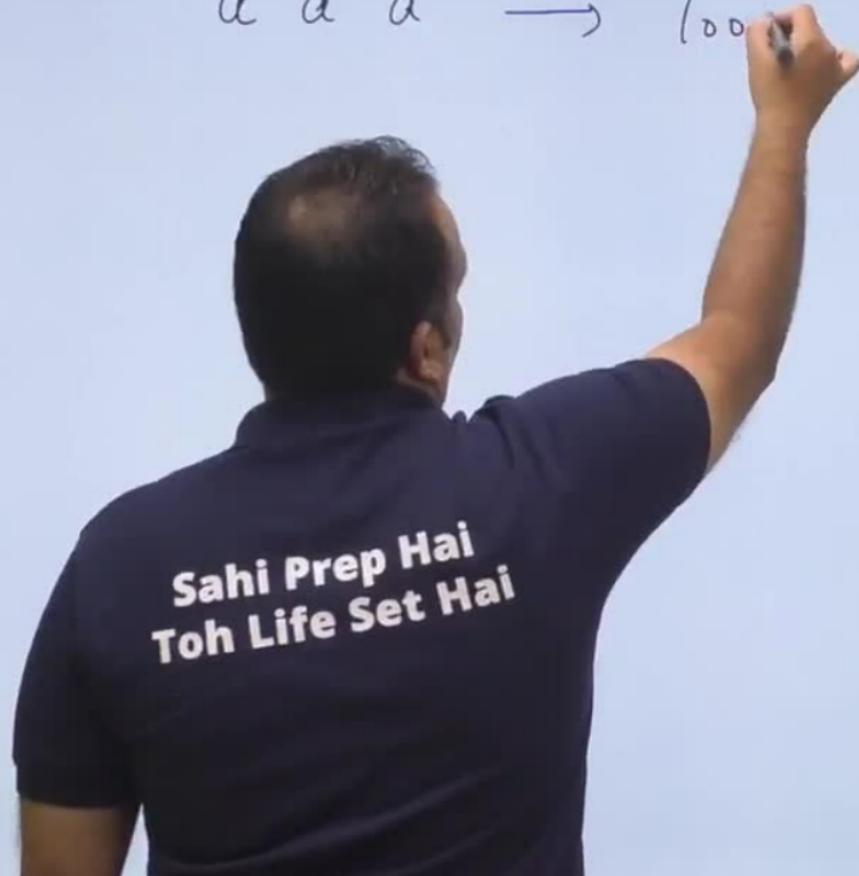
$$\frac{5}{}$$

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$$\frac{1 + 2 + 6 + 12}{18}$$

$$\frac{27}{18} \quad R = 9$$

H T U  
a a a → 100



$$\begin{matrix} H & T & U \\ a & a & a \end{matrix} \rightarrow 100a + 10a + a$$

111a  
—  
3

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$$\begin{matrix} H & T & U \\ a & a & a \end{matrix} \rightarrow 100a + 10a + a$$

$$\begin{array}{c} 111a \\ / \quad \backslash \\ 3 \quad 37 \quad a \end{array}$$

a a a

Sahi Prep Hai  
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$$\begin{matrix} H & T & V \\ a & a & a \end{matrix} \rightarrow 100a + 10a + a$$

$$\begin{array}{c} 111a \\ / \quad \backslash \\ 3 \quad 37 \quad a \end{array}$$

a



alwa

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$$\begin{matrix} H & T & U \\ a & a & a \end{matrix} \rightarrow 100a + 10a + a$$

$$\begin{matrix} 111a \\ / \quad \backslash \\ 3 \quad \cdot \quad 37 \quad a \\ = \quad = \quad = \end{matrix}$$

$$a \ a \ a \rightarrow$$

always divisible by 37

Q.3

$$\begin{array}{r} 444444\ldots\ldots\ldots(100 \text{ digits}) \\ \hline 37 \end{array}$$



Q.3      
$$\frac{444444\ldots\ldots(100 \text{ digits})}{37}$$



Q.3 
$$\begin{array}{r} 444444\ldots\ldots\ldots(100 \text{ digits}) \\ \hline 37 \end{array}$$

$\overbrace{444\cdots\cdots}^{99 \text{ times}}$   $\overbrace{\quad\quad\quad}^{37} R = 0$

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Rem -

Q.3 
$$\frac{444444\ldots\ldots(100 \text{ digits})}{37}$$

4444444... - - - (99 times)      R = 0  
37

$$\begin{array}{r} 4 \\ \hline 37 \\ \text{Rem} = 4 \end{array}$$

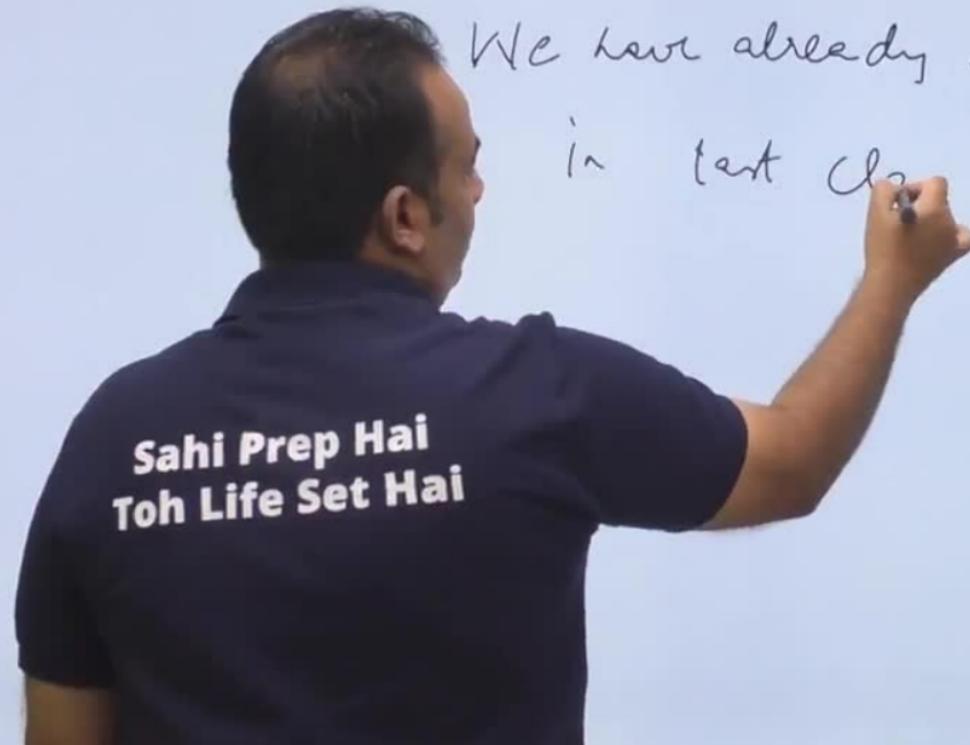
$$Q.4 \quad \frac{2^{96}}{96}$$

We have alre

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$$Q.4 \quad \frac{2^{96}}{96}$$

We have already done  
in last class



Q.5  $\frac{(33^{34})^{35}}{7}$



Q.5      
$$\frac{(33^{34})^{35}}{7}$$

34.35

$$\begin{array}{r} 5 \\ \hline 7 \end{array}$$

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By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$34 \cdot 35$$

$$\begin{array}{r} 5 \\ \hline 7 \end{array}$$

$$\rightarrow \begin{array}{r} 3^4 \cdot 35 \\ \hline 6 \end{array}$$

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By Fermat Theorem

$$\frac{5}{7} \quad \textcircled{6}$$

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\begin{array}{r} 34 \cdot 35 \\ \hline 5 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 34 \cdot 35 \\ \hline 6 \end{array}$$

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By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\frac{5}{7} \quad R = 1$$

$34 \cdot 35$

$\frac{1}{7}$

$2^4$   
 $34$   
 $35$

$2$

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By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\frac{2}{7}$$

$$\rightarrow \frac{34^4 \cdot 35^5}{6} = ②$$

By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\frac{5}{7} \quad R = 1$$

$3 \cdot 4 \cdot 35$

→ →  $\frac{5^2}{ }$

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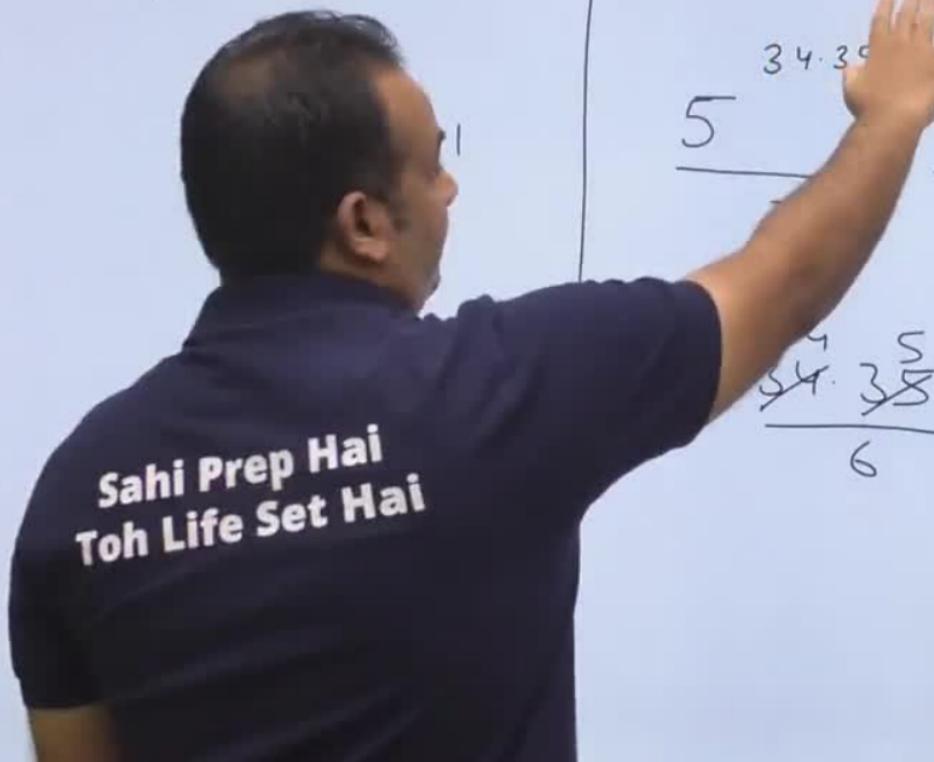
By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\frac{5}{7} \rightarrow \frac{5^2}{7}$$

$$\textcircled{R = 4}$$

$$\frac{5^4 \cdot 35}{6} = \textcircled{2}$$



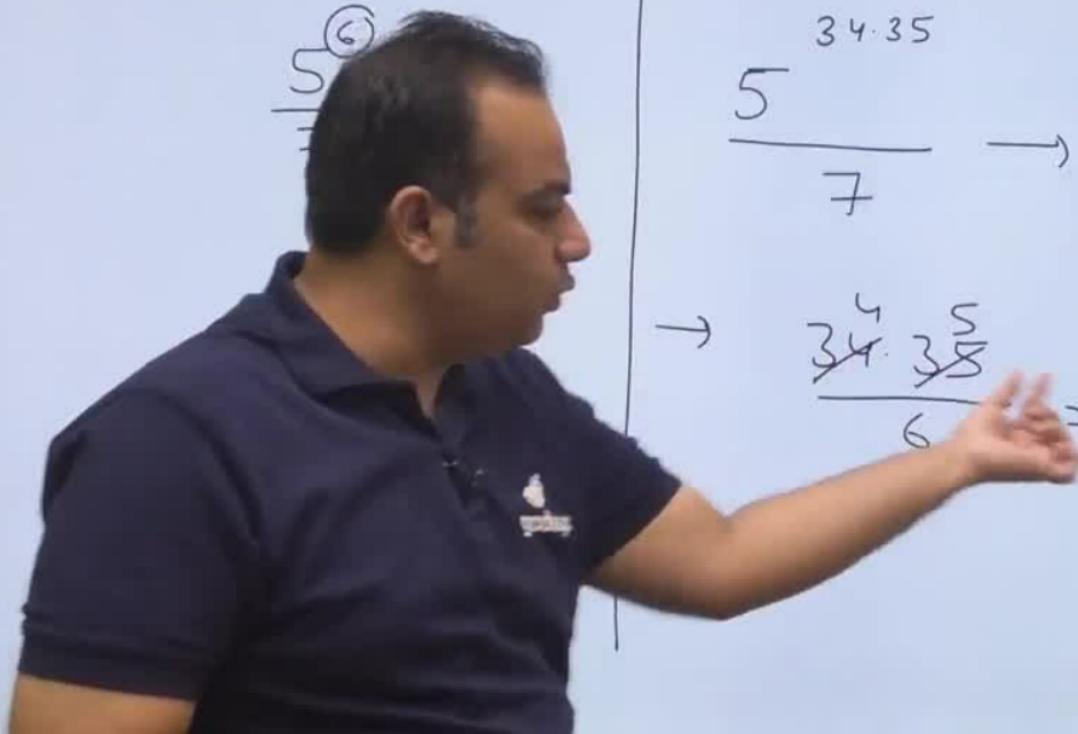
By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\frac{5}{7} \xrightarrow{34 \cdot 35} \frac{5^2}{7}$$

$R = 4$

$$\rightarrow \frac{34 \cdot 35}{6} = 2$$



By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$34 \cdot 35$

$$\frac{5}{7} \rightarrow \frac{5^2}{7}$$

$R = 4$

$$\frac{34 \cdot 35}{6} = ②$$

By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\frac{5}{7} \quad R = 1$$

$$34 \cdot 35$$

$$\frac{7}{7} \rightarrow \frac{5^2}{7}$$

$$\textcircled{R = 4}$$

$$\cancel{34} \cdot \cancel{35}$$

2

By Fermat Theorem

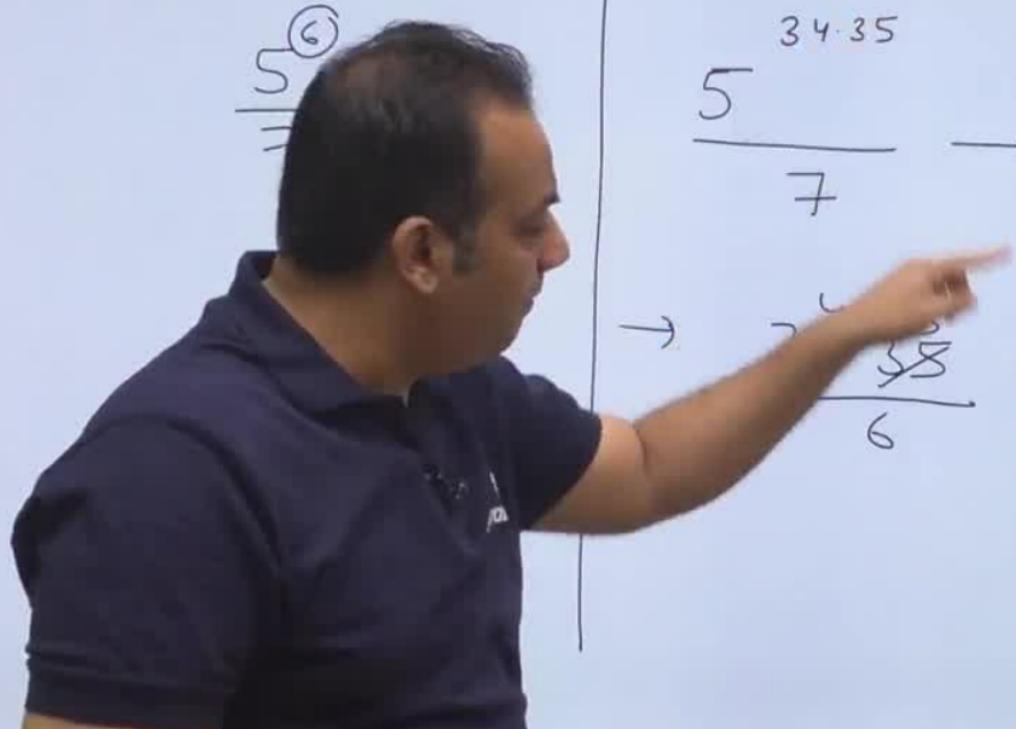
Q.5  $\frac{(33^{34})^{35}}{7}$

$34 \cdot 35$

$$\frac{5}{7} \rightarrow \frac{5^2}{7}$$

$R = 4$

$$\rightarrow \frac{5^2}{7} = \frac{25}{7} = 3 \frac{4}{7} = 3R + 4$$



By Fermat Theorem

Q.5  $\frac{(33^{34})^{35}}{7}$

$$\frac{5}{7} \quad R = 1$$

$$R = 1$$

$$34 \cdot 35$$

$$\frac{5^2}{7}$$

$$R = 4$$

$$34 \cdot 35$$

$$= 2$$

Q.6       $\frac{33^{3435}}{7}$



Q.6      
$$\begin{array}{r} 33^{3435} \\ \hline 7 \end{array}$$

$$5^{3435}$$

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$$\frac{5}{7}^6$$

R

Q.6       $\frac{33^{34}35}{7}$

$$\frac{5}{7}^{34}35$$

$$\frac{34}{6}^{35} =$$

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$$\frac{5}{7} \quad R=1$$

Q.6

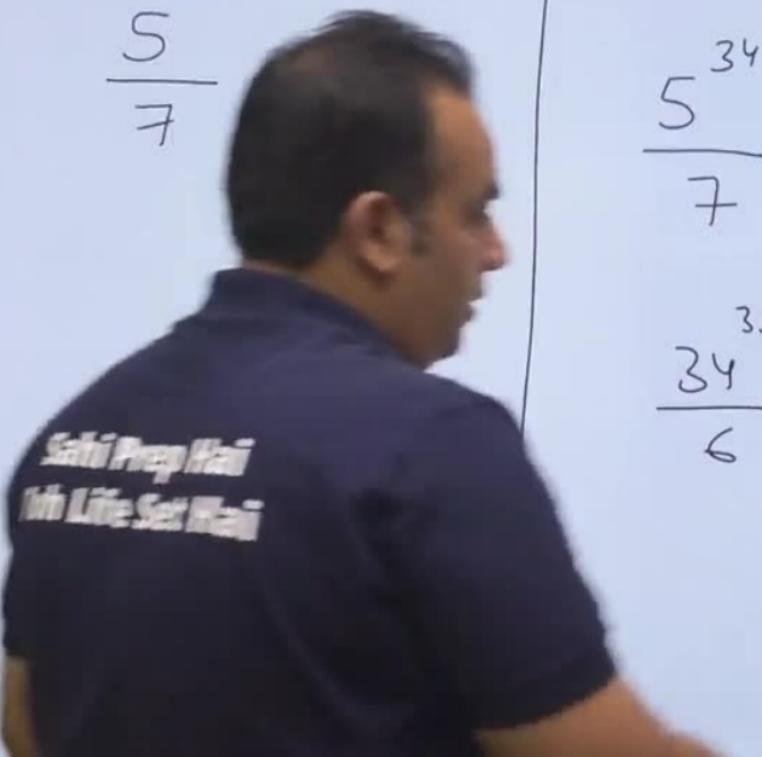
$$\begin{array}{r} 33^{3435} \\ \hline 7 \end{array}$$

$$\begin{array}{r} 35 \\ 34 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 35 \\ 34 \\ \hline = (7) \end{array}$$

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$$\frac{5^6}{7}$$



Q.6  $\frac{33^{3435}}{7}$

$$\frac{5^{34}}{7^{35}}$$

$$\frac{34^{35}}{6} = \frac{(2 \cdot 17)^{35}}{6} = \underline{\underline{2^{35} \cdot 17^{35}}}$$

$$\frac{5}{7} \quad R=1$$

Q.6       $\frac{33^{34}35}{7}$

$$\begin{array}{r} 35 \\ 5^{34} \\ \hline 7 \end{array}$$

$(-17)^{35} = 2^{34} 38^{35} - 17$

R. 3

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$$\frac{5}{7} \quad R=1$$

Q.6       $\frac{33^{34}35}{7}$

$$\begin{array}{r} 35 \\ 34 \\ 5 \\ \hline 7 \end{array}$$

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$$(17)^{35} = \frac{2^{34} \cdot 17^{35}}{17^3}$$

$$\frac{5^6}{7}$$

Q.6  $\frac{33^{3435}}{7}$

$$\frac{5^{34}}{7^{35}}$$

$$\begin{aligned}\frac{34^{35}}{6} &= \frac{(2 \cdot 17)^{35}}{6} = \frac{2^{34} \cdot 17^{35}}{2 \cdot 3} \\ &= \frac{1 \cdot (-1)}{3} = 2\end{aligned}$$

$$\frac{5}{7} \quad R=1$$

Q.6

$$\begin{array}{r} 33^{34} \\ \hline 7 \end{array}$$

$$\begin{array}{r} 35 \\ 5^{34} \\ \hline 7 \end{array}$$

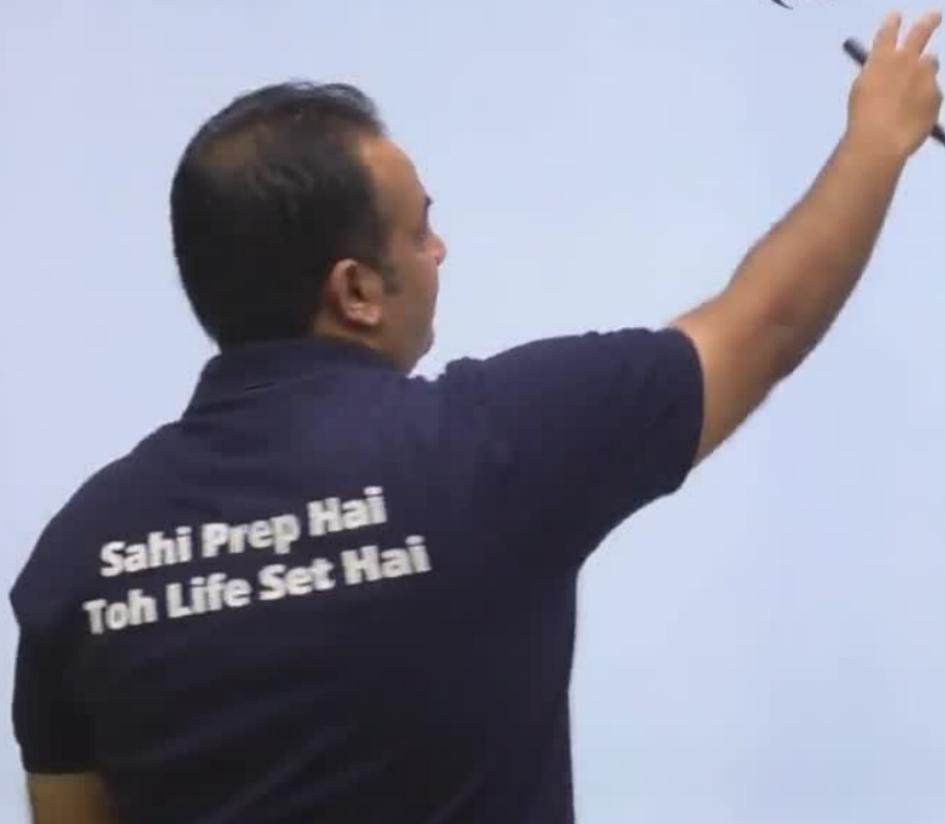
$$\begin{array}{r} 35 \\ 34 \\ \hline 6 \end{array}$$

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$$\begin{array}{r} 35 \\ -17 \\ \hline 18 \end{array}$$

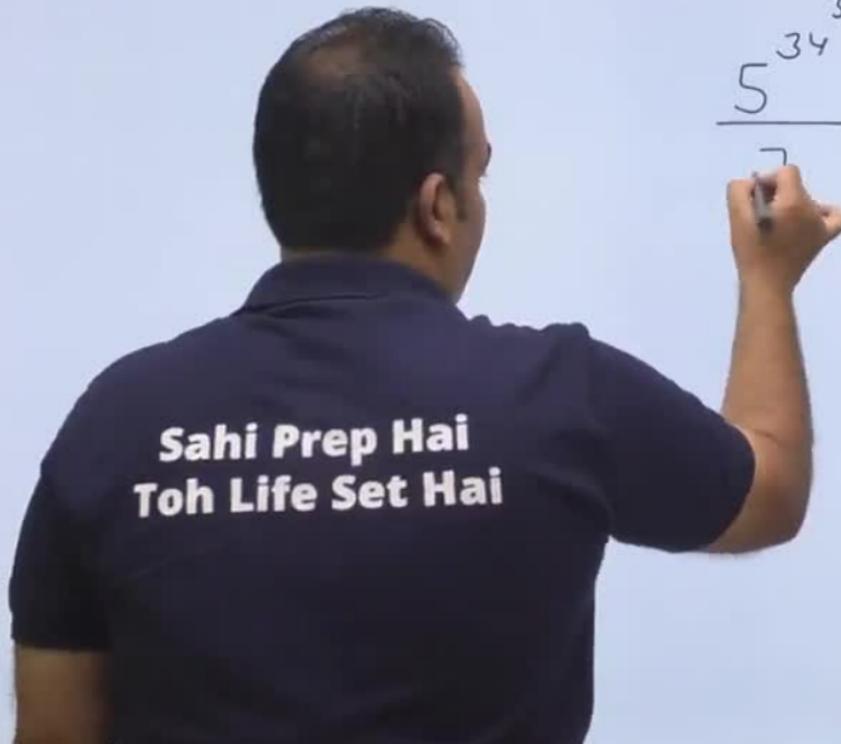
$$\begin{array}{r} 22 \\ -17 \\ \hline 5 \end{array}$$

Q.6      
$$\begin{array}{r} 33^{3435} \\ \hline 7 \end{array}$$



Q.6

$$\begin{array}{r} 33^{3435} \\ \hline 7 \\ 35 \\ \hline 5^{34} \\ \hline \end{array}$$



$$\frac{5^6}{7} \quad R = 1$$

$$\begin{aligned}
 \frac{34^{35}}{6} &= \frac{(2 \cdot 17)^{35}}{6} \\
 &= \frac{2^{34} \cdot 17^{35}}{2 \cdot 3} \\
 &= \frac{1 \cdot (-1)}{3} = 2 \\
 2 \times 2 &= 4
 \end{aligned}$$

b)

Q.6

$$\frac{33^{3435}}{7}$$

$$\frac{5^{34}}{7}$$

$$\frac{5^6}{7} \quad R = 1$$

$$\frac{34^{35}}{6} = \left( \frac{2 \cdot 17}{6} \right)^{35}$$

$$= \cancel{2}^{34} \cdot \cancel{17}^{35} \cdot \cancel{3}^{35}$$

$$= \frac{1 \cdot (-1)}{3}$$

$$2 \times 2 = 4$$

Q.6

$$\frac{33^{3435}}{7}$$

$$= \frac{5^4}{7} = \underline{\underline{625}}$$

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$$\frac{5^6}{7} \quad R = 1$$

$$\frac{34^{35}}{6} = \left( \frac{2 \cdot 17}{6} \right)^{35}$$

$$= \cancel{2}^{34} \cdot \cancel{17}^{35} \cdot \cancel{3^{35}}$$

$$= \frac{1 \cdot (-1)}{3}$$

$$2 \times 2 = 4$$

Q.6

$$\frac{33^{3435}}{7}$$

$$\frac{5^4}{7} = \frac{625}{7}$$

$$\text{Rem} = 2$$

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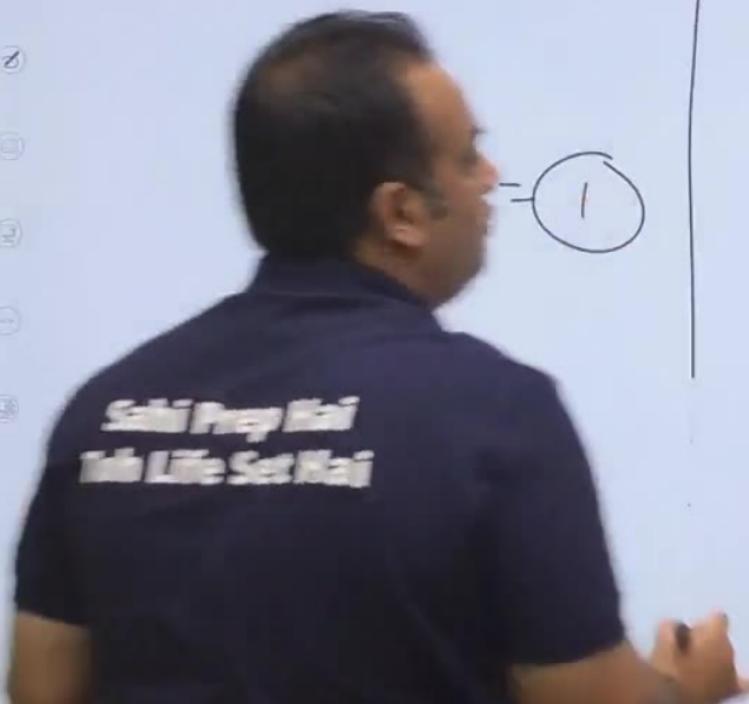
$$\frac{6^{10}}{11} \quad R=1$$

= 1

Q.7

$$\frac{50^{51^{52}}}{11}$$

$$\frac{52}{51}$$

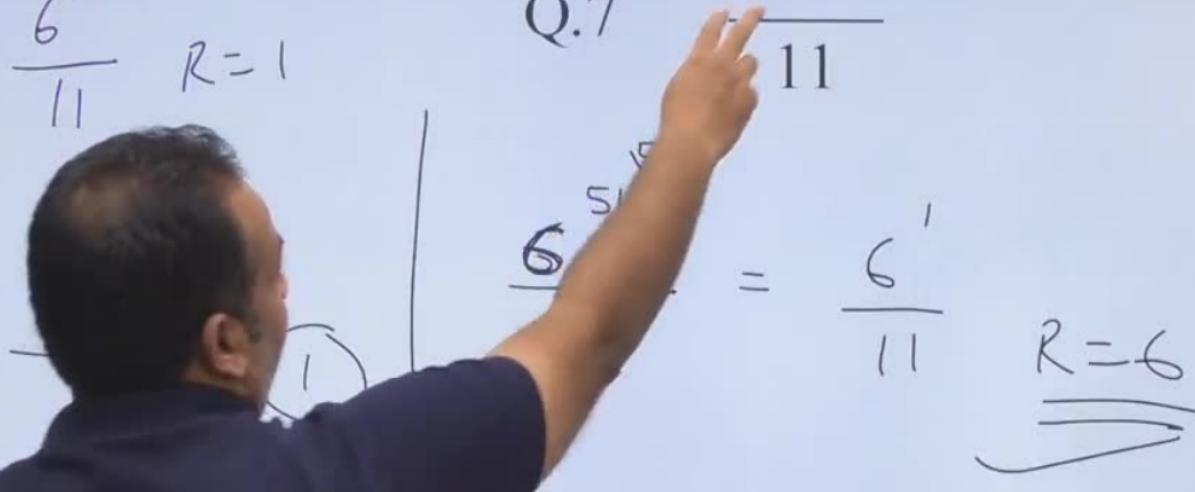


$$\frac{6^{10}}{11} \quad R = 1$$

Q.7

$$\frac{50^{51^{52}}}{11}$$

$\frac{6^{51^{52}}}{11} = \frac{6^1}{11} \quad R = 6$



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$$\frac{6^{10}}{11} \quad R=1$$

$$\frac{51^{52}}{10}$$

Q.7

$$\frac{50^{51^{52}}}{11}$$

$$\frac{6^{51^{52}}}{11} = \frac{6^1}{11}$$

$$R=6$$


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$$\frac{6^{10}}{11} \quad R=1$$

$$\frac{51^5}{10}$$

Q.7

$$\frac{50^{51^{52}}}{11}$$

$$\frac{6^{52}}{11} = \underline{\underline{R=6}}$$

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$$\frac{6^{10}}{11} \quad R=1$$

$$\frac{51^{52}}{10} = \textcircled{1}$$

Q.7       $\frac{50^{51^{52}}}{11}$

$$\frac{6^{51^{52}}}{11} = \frac{6^1}{11} \quad R=6$$

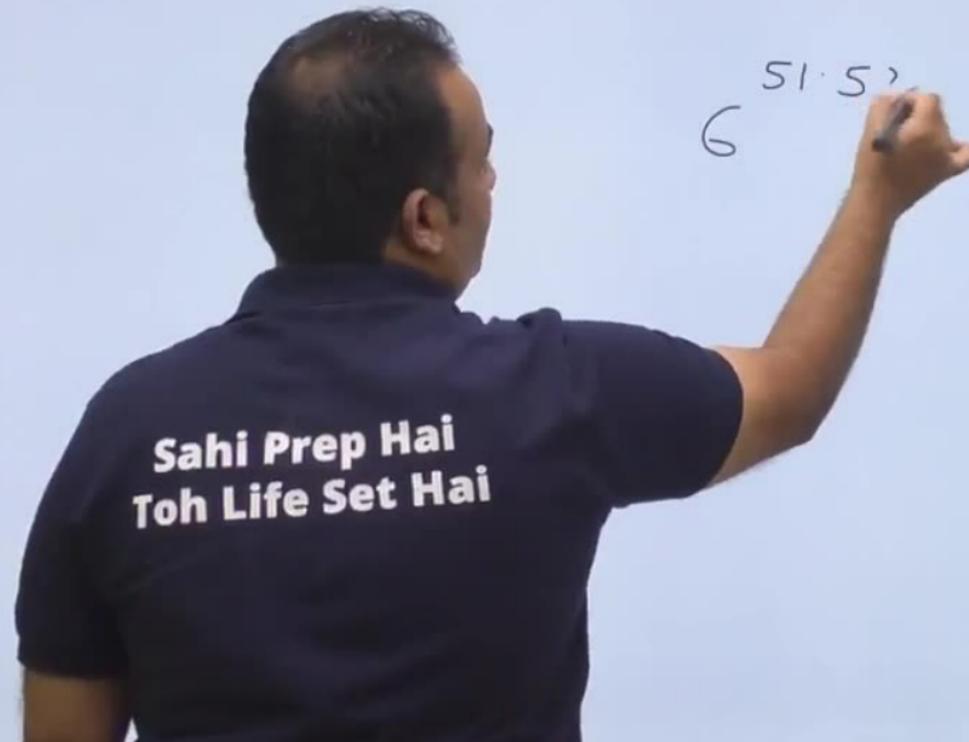
Q.8

$$\frac{(50^{51})^{52}}{11}$$



Q.8       $\frac{(50^{51})^{52}}{11}$

$51 \cdot 52$   
6



Q9. A number on division by 119 gives 19 as the remainder. If the number is divided by 17 what will be the remainder.



$$\frac{6}{11} \quad R = 1$$

$$\frac{1}{51} \cdot \frac{2}{52} \Rightarrow \underline{\underline{2}}$$

Q.8     $\frac{(50^{51})^{52}}{11}$

$$\frac{6^{51 \cdot 52}}{11} = \frac{6^2}{11}$$

$$= 3 \checkmark$$

$$\frac{6}{11} \quad R = 1$$

$$\frac{1}{51} =$$

Q.8  $\frac{(50^{51})^{52}}{11}$

$$= \frac{6^2}{11}$$

$$= 3 \checkmark$$

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Q9. A number on division by 119 gives 19 as the remainder. If the number is divided by 17 what will be the remainder.

$$\begin{array}{r} N \\ \hline 119 \\ R = 19 \end{array}$$

Sahi Prep Hai  
Toh Life Set Hai

Q9. A number on division by 119 gives 19 as the remainder. If the number is divided by 17 what will be the remainder.

$$\begin{array}{r} N \\ \hline 119 \\ \end{array} \quad R = 19$$

$$\begin{array}{r} N \\ \hline 17 \\ \end{array}$$

**Sahi Prep Hai  
Toh Life Set Hai**

Q10. A number on division by 40 gives 29 as the remainder. What is the remainder when the same number is divided by 8?

$$\begin{array}{r} \cancel{40}x + 29 \\ \hline 8 \end{array}$$

Rem

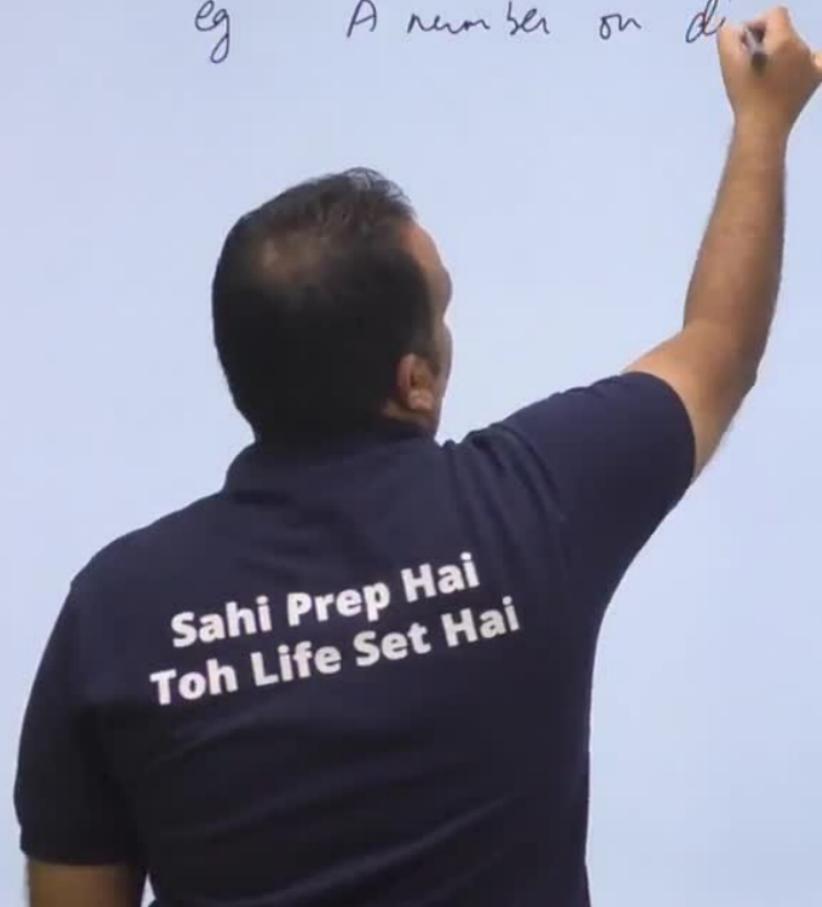
Sahi Prep Hai  
Toh Life Set Hai

Q10. A number on division by 40 gives 29 as the remainder. What is the remainder when the same number is divided by 8?

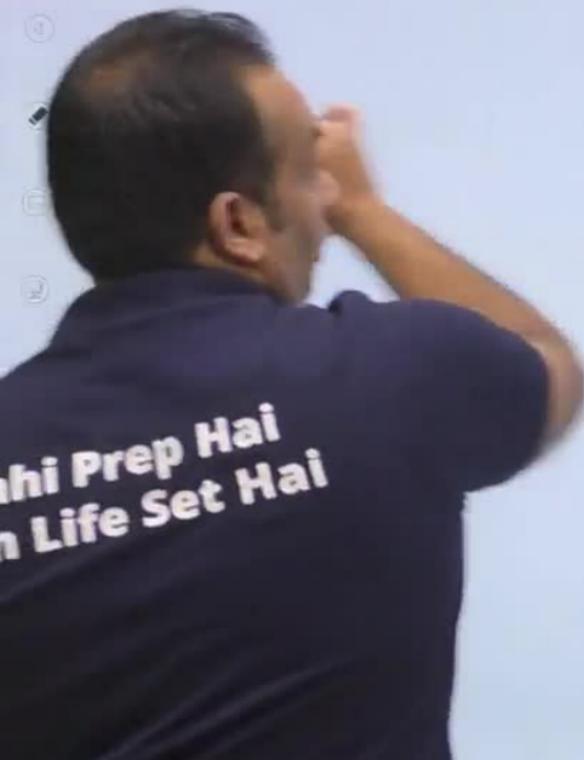
$$\begin{array}{r} \cancel{40}x + 29 \\ \hline 8 \end{array}$$

Rem = 5

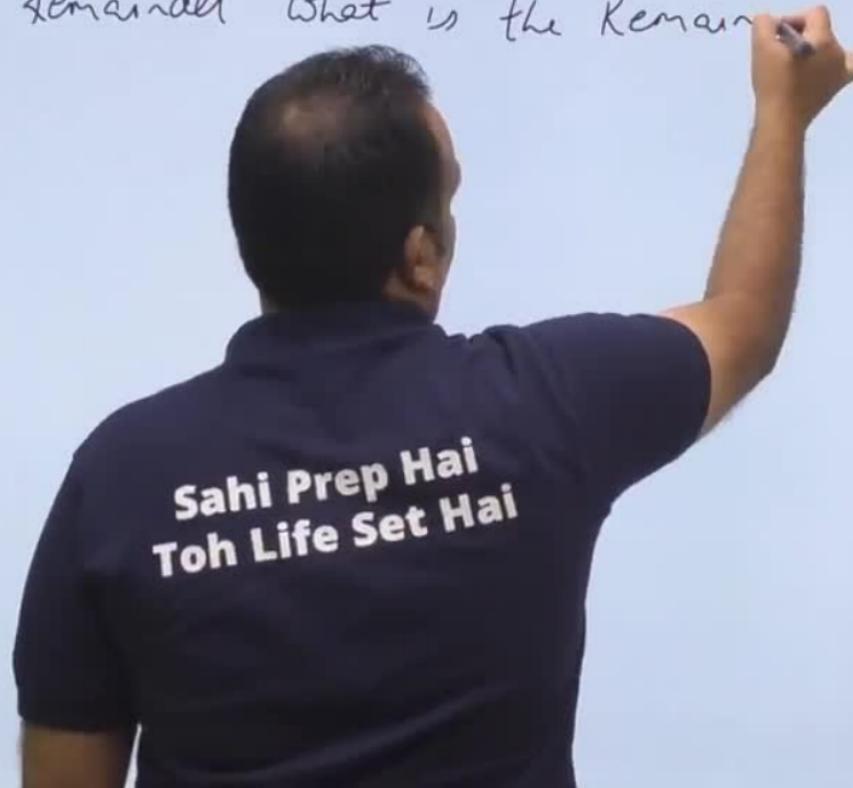
eg A number on d



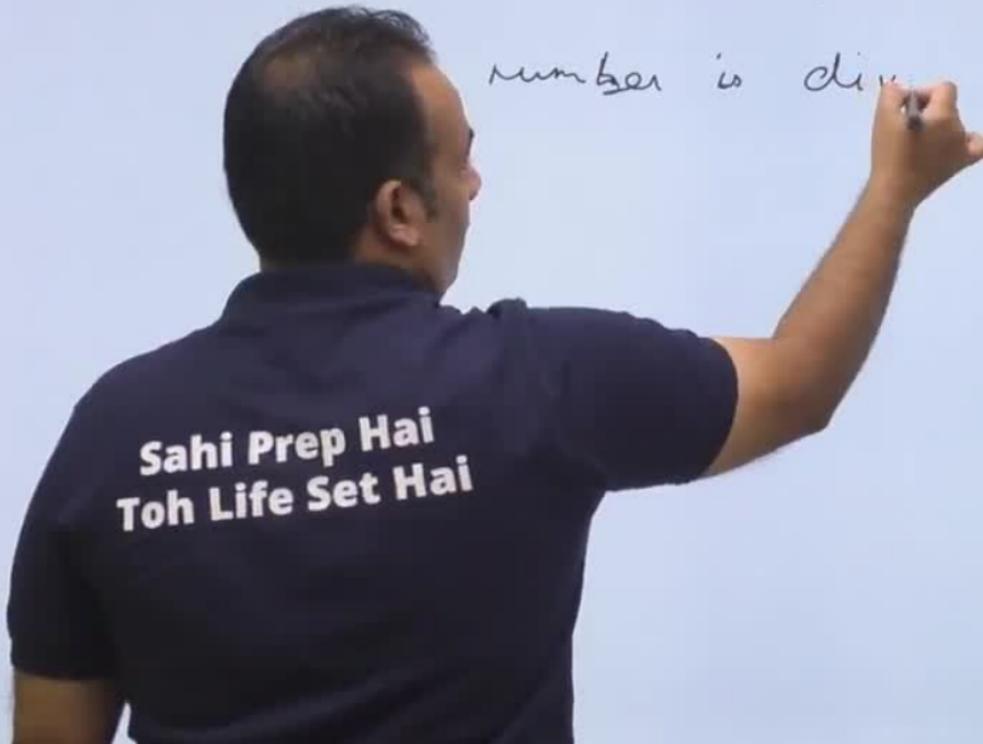
eg A number on division by 12 gives 4 as the remainder. What is



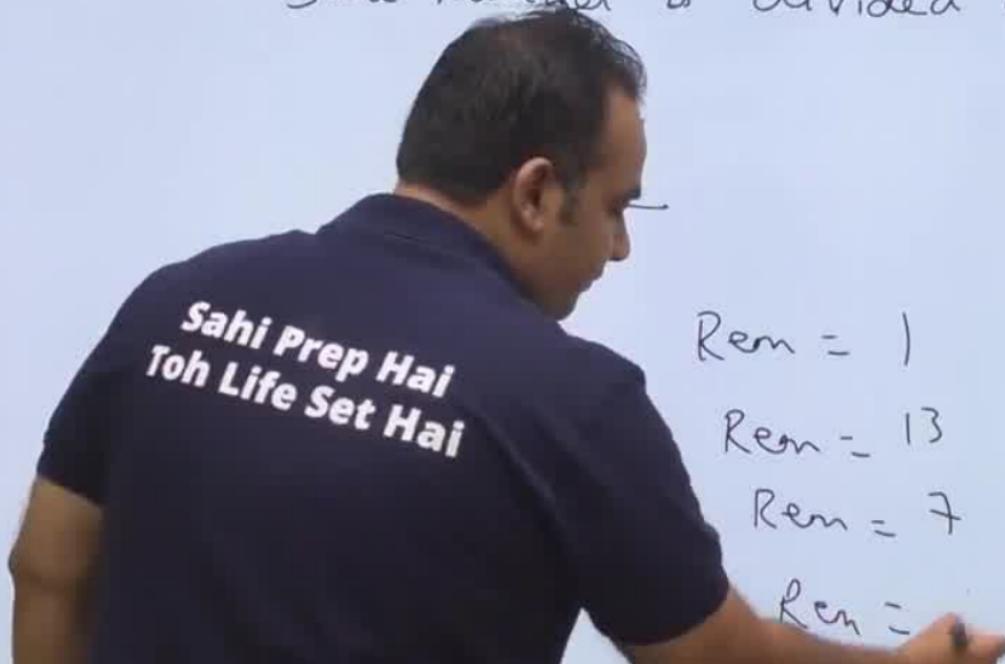
eg A number on division by 12 gives 1 as the remainder. What is the Remainder?



eg A number on division by 12 gives 1 as the remainder. What is the remainder when the number is divided by 3?



eg A number on division by 12 gives 1 as the remainder. What is the remainder when the same number is divided by 18 ??



$$\text{Rem} = 1$$

$$\text{Rem} = 13$$

$$\text{Rem} = 7$$

$$\text{Rem} =$$

Eg A number on division by 12 gives 1 as the remainder. What is the remainder when the number is divided by 18 ?

$$\begin{array}{r} 2x + 1 \\ \hline 18 \end{array}$$

0

Rem = 1

1

Rem = 13

Rem = 7

Rem = 1

Eg A number on division by 12 gives 1 as the remainder. What is the remainder when the same number is divided by 18 ??

$$\frac{12x + 1}{18}$$

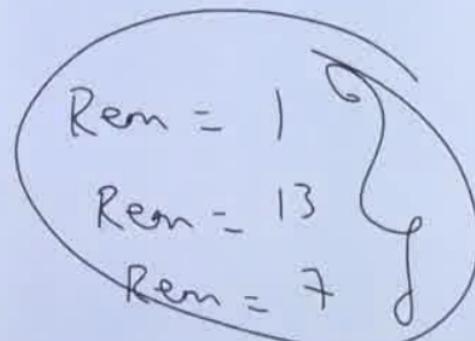
→ Can't be determined

$$x = 0$$

$$x = 1$$

$$x = 2$$

$$x = 3$$



$$\text{Rem} = 1$$

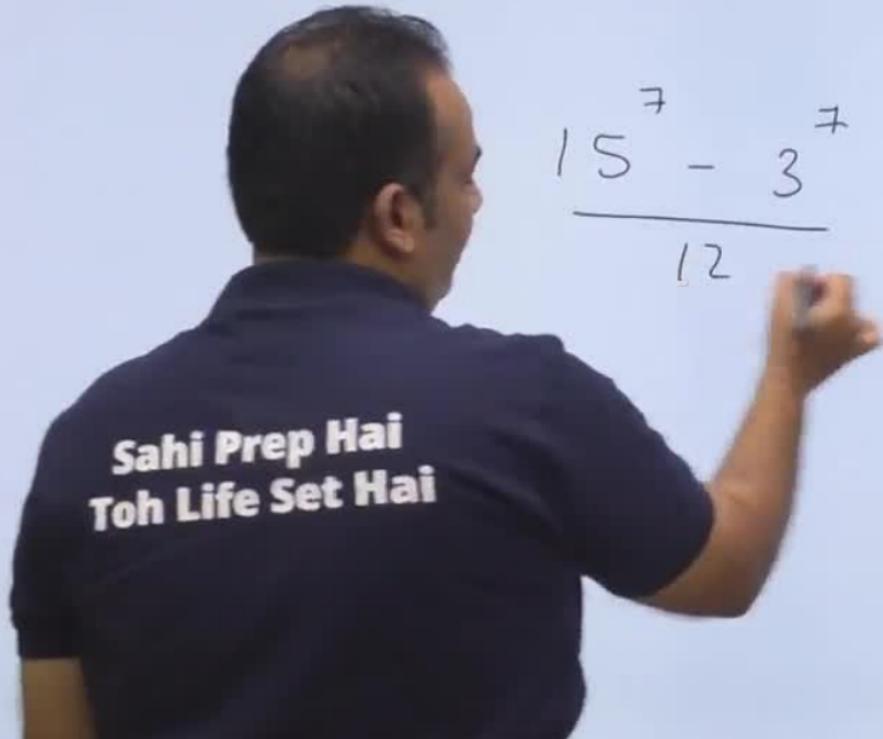
$$\frac{X^n - Y^n}{X - Y}$$

→ Divisible for all values of  $n$ ,  
where  $n$  (natural number)



$\frac{X^n - Y^n}{X - Y}$  → always Divisible for all values of n,  
where n (natural number)

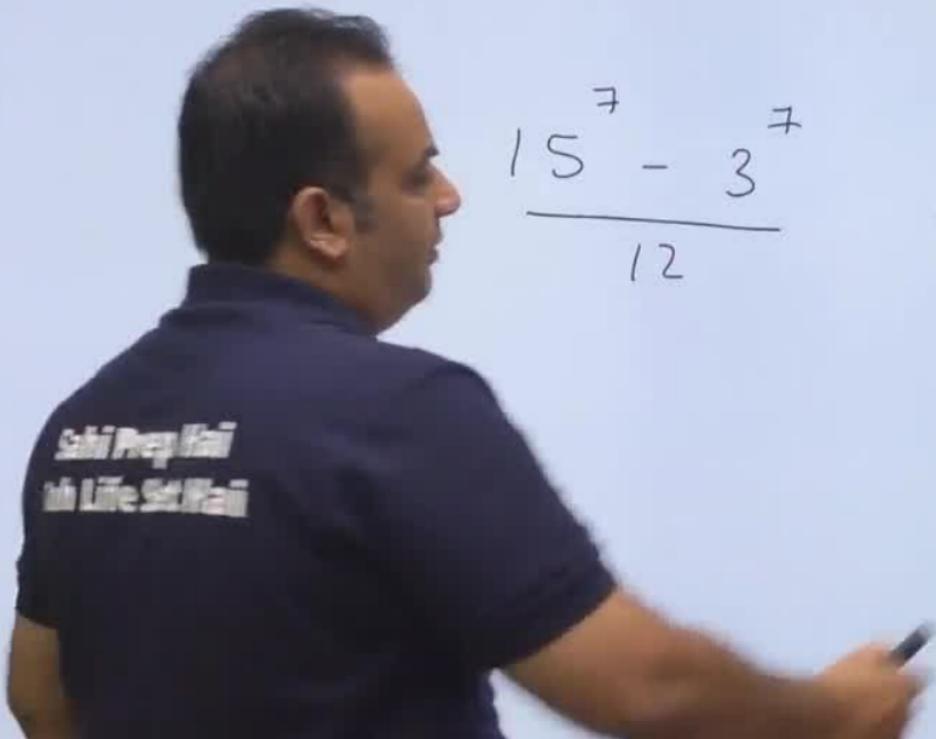
$$\frac{5^7 - 3^7}{12}$$



$\frac{X^n - Y^n}{X - Y}$  → always Divisible for all values of n,  
where n (natural number)

$$\begin{array}{r} 15^7 - 3^7 \\ \hline 12 \end{array}$$

$$\text{Rem} = ??$$



$\frac{X^n - Y^n}{X - Y}$  → always Divisible for all values of n,  
where n (natural number)

e.g.

$$\begin{array}{r} 15^7 - 3^7 \\ \hline 12 \end{array} \quad \text{Rem} = ?? \quad \underline{\underline{0}}$$

$$\begin{array}{r} 47^8 - 11^8 \\ \hline ? \end{array}$$

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$\frac{X^n - Y^n}{X - Y}$  → always Divisible for all values of n,  
where n (natural number)

$$\begin{array}{r} 15^7 - 3^7 \\ \hline 12 \end{array} \quad \text{Rem} = ?? \quad \underline{\underline{0}}$$

$$\begin{array}{r} 47^8 - 11^8 \\ \hline 36 \end{array} \quad \text{Rem} =$$

$\frac{X^n - Y^n}{X - Y}$  → *always* Divisible for all values of  $n$ ,  
where  $n$  (natural number)

eg

$$\begin{array}{r} \overline{-} \\ 3^7 \\ \hline R = 0 \end{array}$$

Sahi Prep Hai  
Toh Life Set Hai

$\frac{X^n - Y^n}{X - Y}$  → *always Divisible for all values of n,  
where n (natural number)*

eg

$$\begin{array}{r} 5^7 - 3^7 \\ \hline 12 \\ R = 0 \end{array}$$

$$\begin{array}{r} 18 \\ \boxed{5} 3 - 11 \\ 18 \end{array}$$

**Sahi Prep Hai  
Toh Life Set Hai**

$\frac{X^n - Y^n}{X - Y}$  *always* → Divisible for all values of  $n$ ,  
where  $n$  (natural number)

eg

$$\begin{array}{r} 15^7 - 3^7 \\ \hline 12 \end{array} \quad R = 0$$

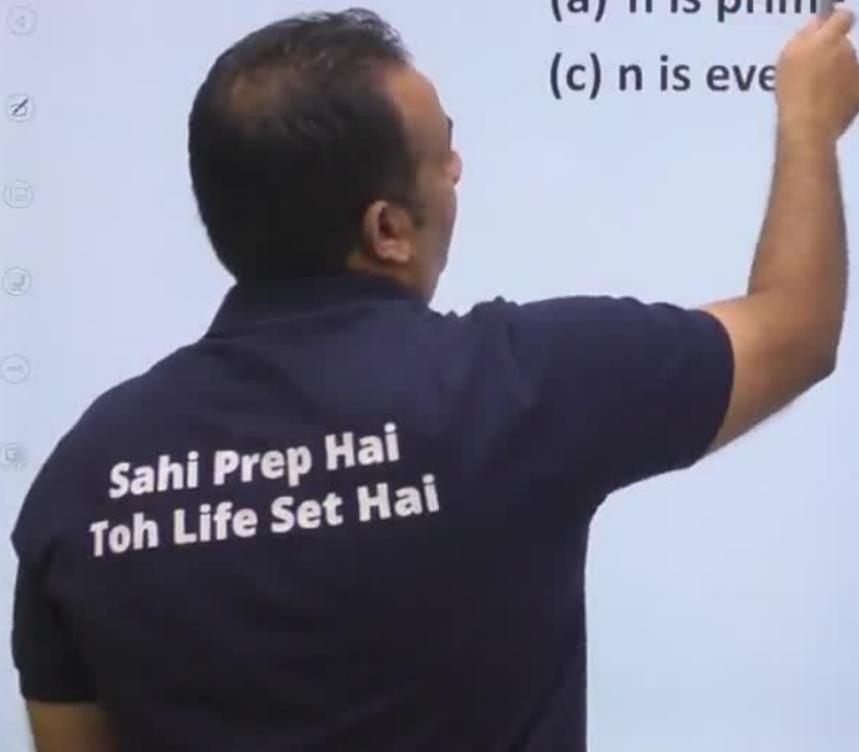
eg

$$\begin{array}{r} 53^{18} - 11^{18} \\ \hline 42 \end{array}$$

e.g. 1  $\frac{15^n - 3^n}{12}$   $\text{Re } m = 0$

- (a) n is prime  
(c) n is even

- (b) n is odd  
(d) n is natural



eg.2  $\frac{59^{19} - 4^{38}}{43}$  Re m = ?



eg.3  $\frac{101^{36} - 3^{144}}{20}$  Re m = ?

$$101^{36} -$$

Sahi Prep Hai  
Toh Life Set Hai

eg.3  $\frac{101^{36} - 3^{144}}{20}$  Rem = ?

$$\frac{101^{36} - (3^4)^{36}}{20}$$

$$\frac{(51^{34} - 81^{32})}{20}$$

Rem = 0

$$\left(\frac{X^n - Y^n}{X + Y}\right)$$

→ Divisible for even values of  $n$   
where  $n$  (natural number)



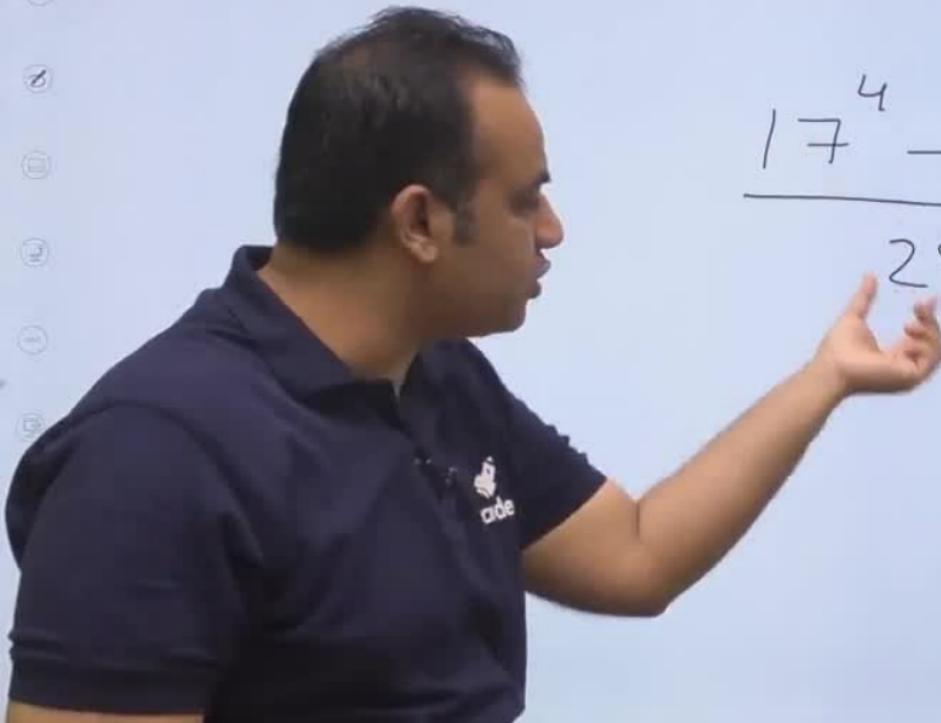
(ii)  $\frac{X^n - Y^n}{X + Y}$  *always*  $\longrightarrow$  Divisible for even values of n  
where n (natural number)

$$17^4 - 11^4$$

Sahi Prep Hai  
Toh Life Set Hai

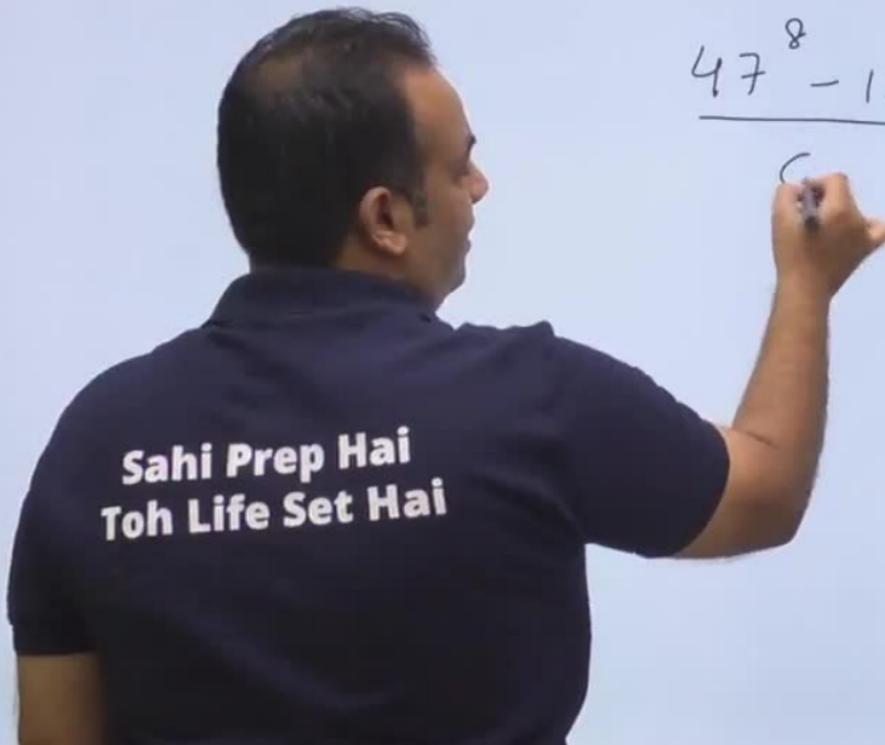
(ii) 
$$\frac{X^n - Y^n}{X + Y} \longrightarrow \begin{matrix} \text{always} \\ \text{Divisible for even values of } n \\ \text{where } n \text{ (natural number)} \end{matrix}$$

$$\frac{17^4 - 11^4}{28}$$



e.g.1  $\frac{47^8 - 13^8}{60}$  Re  $m = ?$

$$\frac{47^8 - 13^8}{60}$$



eg.2  $\frac{59^{28} - 6^{56}}{95}$  Re m = ?

$$\frac{59^{28} - (6^2)^{28}}{95}$$

$$\frac{59^{28} - 36^{28}}{95}$$

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(iii)

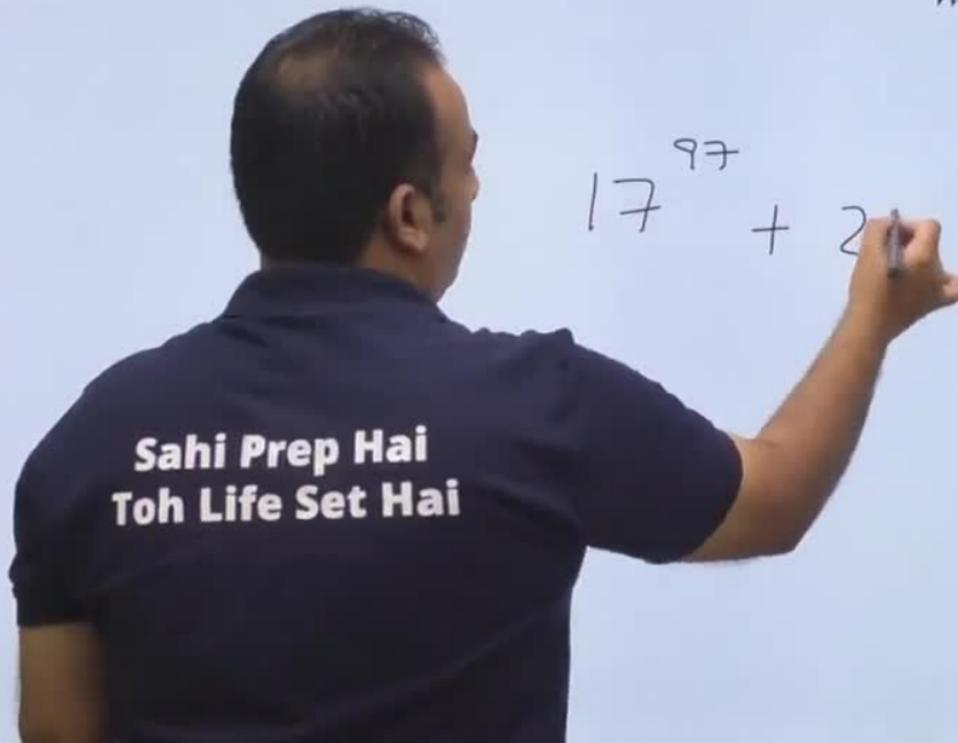
$$\frac{X^n + Y^n}{X + Y}$$

→ Divisible for odd values of  $n$   
where  $n$  (natural number)



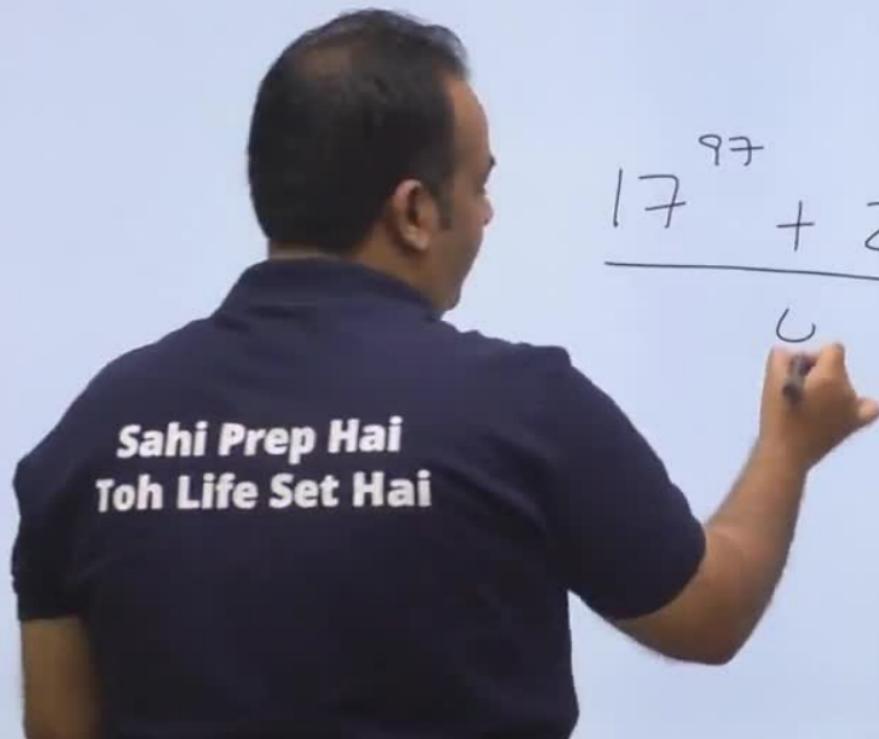
(iii)  $\frac{X^n + Y^n}{X + Y}$   $\longrightarrow$  Divisible for odd values of  $n$   
where  $n$  (natural number)

$$17^{97} + 2$$



(iii)  $\frac{X^n + Y^n}{X + Y}$  → Divisible for odd values of  $n$   
where  $n$  (natural number)

$$\begin{array}{r} 17^{97} \\ + 23^{97} \\ \hline \end{array}$$



Sahi Prep Hai  
Toh Life Set Hai

(iii)  $\frac{X^n + Y^n}{X + Y}$   $\longrightarrow$  Divisible for odd values of  $n$   
where  $n$  (natural number)

$$\begin{array}{r} 17^{97} \\ + 23^{97} \\ \hline 40 \end{array}$$

Rem

Sahi Prep Hai  
Toh Life Set Hai

(iii)  $\frac{X^n + Y^n}{X + Y} \longrightarrow$  Divisible for odd values of  $n$   
where  $n$  (natural number)

eg

$$\begin{array}{r} 17^{97} \\ + 23^{97} \\ \hline 40 \end{array}$$

Rem = 0

e.g.1     $\frac{15^7 + 8^7}{23}$        $\text{Re } m = ?$



e.g.1     $\frac{15^7 + 8^7}{23}$        $\text{Re } m = ?$

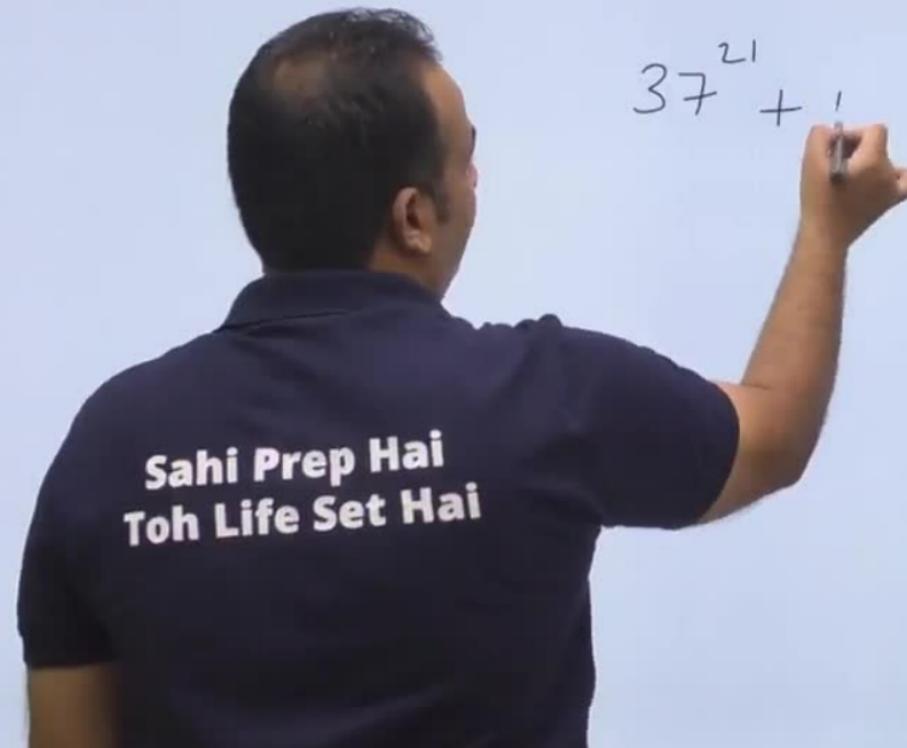


eg.2    
$$\frac{37^{21} + 13^{21}}{25}$$
    Re m = ?



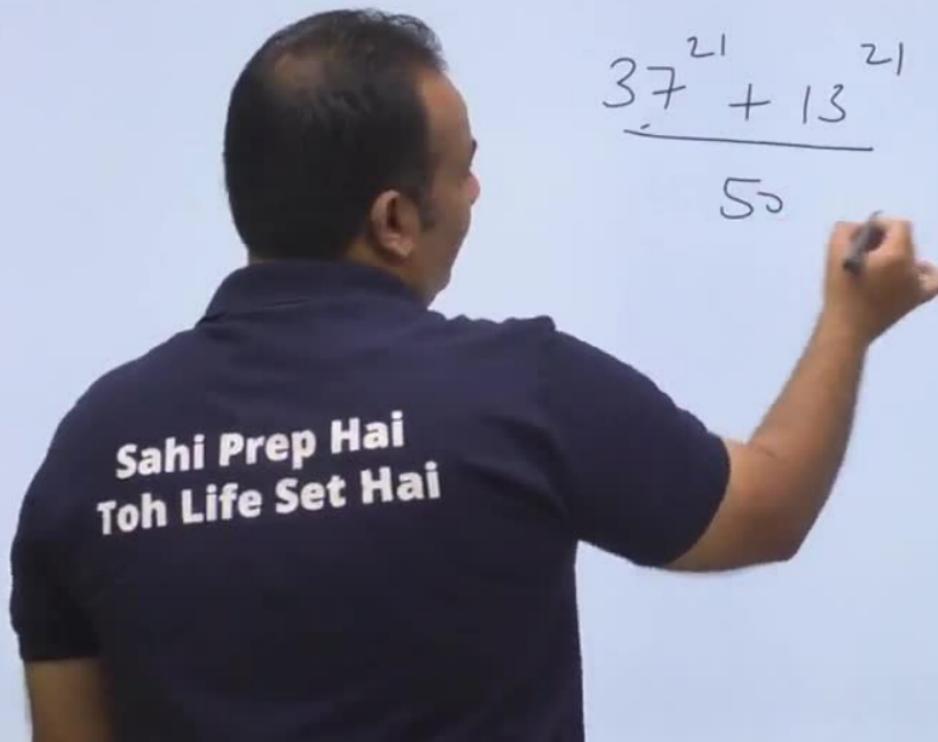
eg.2     $\frac{37^{21} + 13^{21}}{25}$     Rem = ?

$$37^{21} + 1$$



eg.2  $\frac{37^{21} + 13^{21}}{25}$  Re m = ?

$$\begin{array}{r} 37^{21} + 13^{21} \\ \hline 50 \end{array}$$



eg.2  $\frac{37^{21} + 13^{21}}{25}$   $\text{Rem} = ?$

$37^{21} + 13^{21}$   
So

$\text{Rem} = 0$

eg.2  $\frac{37^{21} + 13^{21}}{25}$   $\text{Rem} = ?$

$$\overline{37^{21} + 13^{21}}$$

55

$\text{Rem} = 0$

$$37^{21}$$

**Sahi Prep Hai  
Toh Life Set Hai**

$$\text{eg.2} \quad \frac{37^{21} + 13^{21}}{25} \quad \text{Rem} = ?$$

$$\begin{array}{r} 37^{21} + 13^{21} \\ \hline 5 \end{array}$$

$$\text{Rem} = 0$$

$$\begin{array}{r} 37^{21} + 13^{21} \\ \hline \end{array}$$

Sahi Prep Hai  
Toh Life Set Hai

eg.2  $\frac{37^{21} + 13^{21}}{25}$   $\text{Rem} = ?$

$3 - 21$   
 $8$   
 $3 - 21$

$\text{Rem} = 0$

$12 - 21$

$\text{Rem} = 0$

Sahi Prep Hai  
Toh Life Set Hai

eg.2  $\frac{37^{21} + 13^{21}}{25}$  Rem = ?

$$\begin{array}{r} 37^{21} \\ + 13^{21} \\ \hline 50 \end{array}$$

Rem = 0

$$\begin{array}{r} 37^{21} \\ + 13^{21} \\ \hline 25 \end{array}$$

Rem = 0

eg.2  $\frac{37^{21} + 13^{21}}{25}$  Rem = ?

$$\begin{array}{r} 37^{21} \\ + 13^{21} \\ \hline \end{array}$$

$$\text{Rem} = 0$$

$$\begin{array}{r} 37^{21} \\ + 13^{21} \\ \hline 25 \end{array}$$

$$\underline{\text{Rem} = 0}$$

$$\frac{X^n - Y^n}{X - Y} \longrightarrow n = \text{all values}$$


$$\frac{X^n - Y^n}{X - Y} \longrightarrow n = \text{even values}$$

$$\frac{X^n + Y^n}{X - Y} \longrightarrow n = \text{odd values}$$

$$\frac{X^n + Y^n}{X - Y} \longrightarrow n = \text{no values}$$

where  $n$  (natural number)

$$\frac{X^n - Y^n}{X - Y} \longrightarrow n = \underline{\text{all values}}$$

$$\frac{X^n - Y^n}{X + Y} \longrightarrow n = \underline{\text{even values}}$$

$$\frac{X^n + Y^n}{X - Y} \longrightarrow n = \underline{\text{odd values}}$$

$$\frac{X^n + Y^n}{X - Y} \longrightarrow n = \underline{\text{no values}}$$

where  $n$  (natural number)



A large curly brace on the left groups three mathematical expressions. To its left, the word "Temp" is written vertically with a checkmark over it.

$$\left\{ \begin{array}{l} \frac{X^n - Y^n}{X - Y} \\ \frac{X^n - Y^n}{X + Y} \\ \frac{X^n + Y^n}{X + Y} \end{array} \right.$$

$\longrightarrow n = \underline{\text{all values}}$

$$\frac{X^n - Y^n}{X + Y}$$

$\longrightarrow n = \underline{\text{even values}}$

$$\frac{X^n + Y^n}{X + Y}$$

$\longrightarrow n = \underline{\text{odd values}}$

$$\frac{X^n + Y^n}{X - Y}$$

$\longrightarrow n = \underline{\text{no values}}$

where  $n$  (natural number)

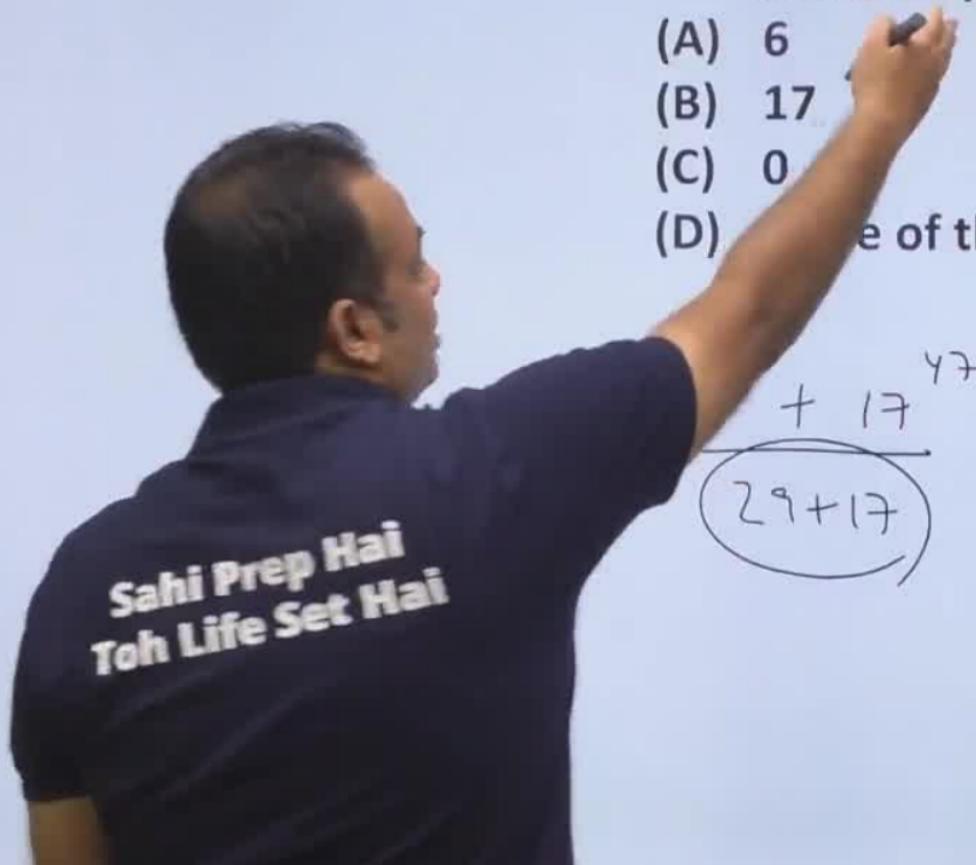
- Q.  $(10^n - 1)$  is always completely divisible by 11 if
- (A) For all values of n.
  - (B) When n is an odd number.
  - (C) When n is an even number.
  - (D) When n is a multiple of 11.

$$\frac{10^n - 1}{11} = \text{L}$$

**Sahi Prep Hai  
Toh Life Set Hai**

Q. Find the remainder when  $(29^{47} + 17^{47})$  is divided by 23.

- (A) 6
- (B) 17
- (C) 0
- (D) None of these



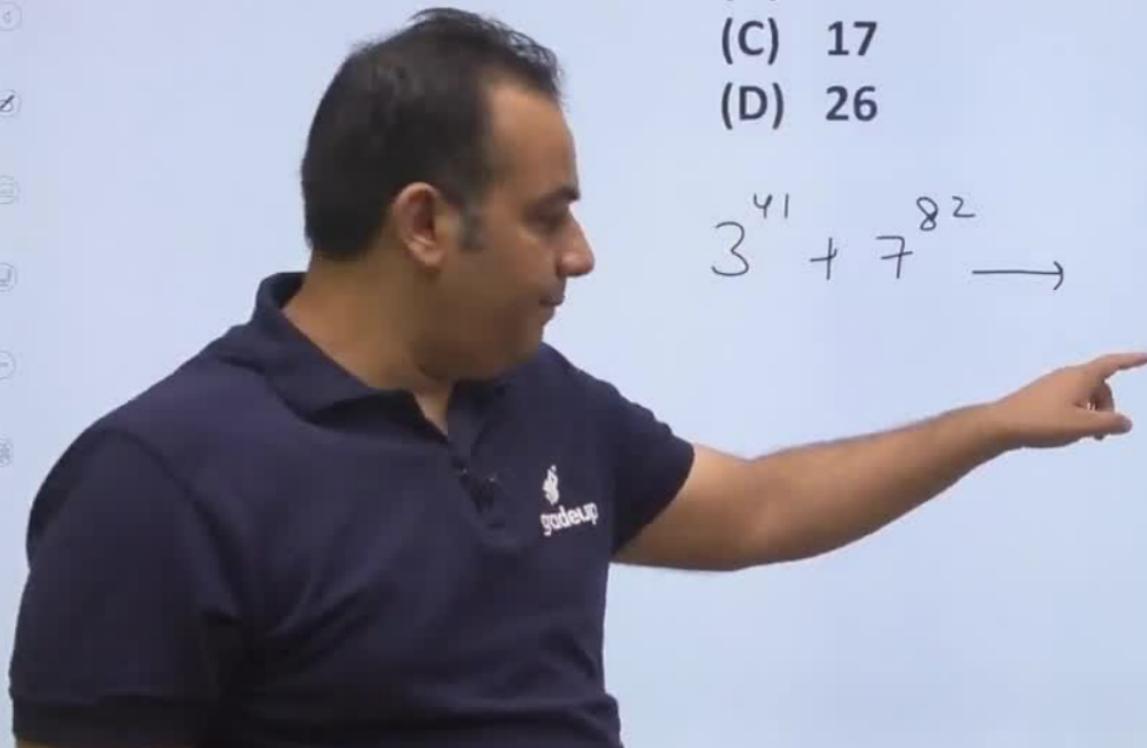
Q. Which of the following will not completely divide  $(3^{41} + 7^{82})$ ?

- (A) 4
- (B) 52
- (C) 17
- (D) 26

Q. Which of the following will not completely divide  $(3^{41} + 7^{82})$ ?

- (A) 4
- (B) 52
- (C) 17
- (D) 26

$$3^{41} + 7^{82} \rightarrow 3^{41} + (7^2)^{41}$$
$$3^{41} + 49^{41}$$



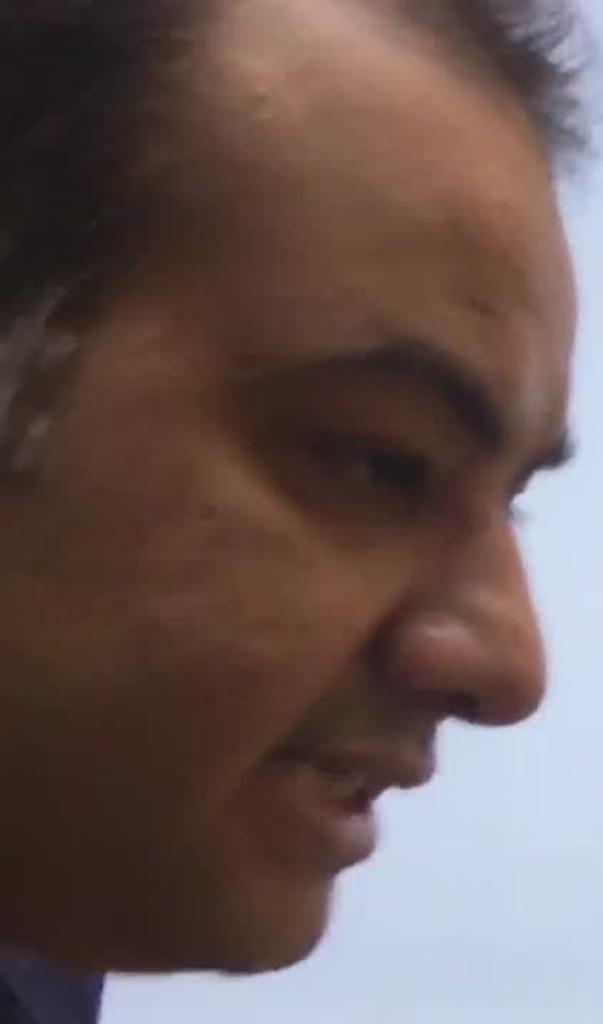
Q. Which of the following will not completely divide  $(3^{41} + 7^{82})$ ?

- (A) 4
- (B) 52
- (C) 17
- (D)

$$\rightarrow 3^{41} + (7^2)^{41}$$

$$\rightarrow \underline{3^{41}} + \underline{49^{41}}$$

Sahi Prep Hai  
Toh Life Set Hai

- 
- A close-up, profile view of a man's head, showing his forehead, eye, nose, and mouth. He has dark hair and appears to be wearing a suit jacket. The background is a plain, light color.
- Q. Which of the following will completely divide  $(49)^{15} + 1$ ?
- (A) 50
  - (B) 51
  - (C) 29
  - (D) 8

Q.  $2^{16} - 1$  is divisible by:

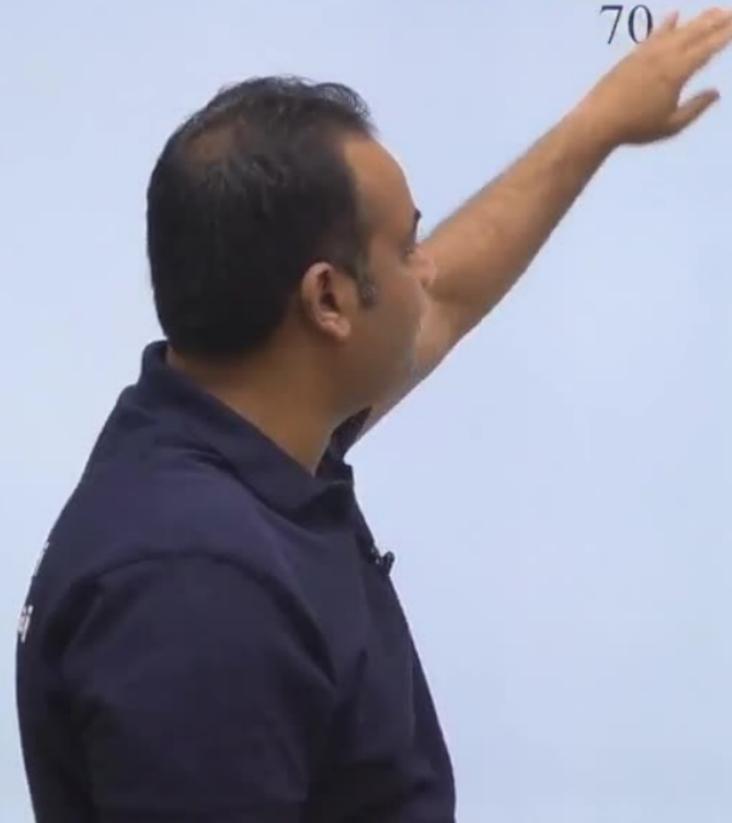
- (A) 11
- (B) 13
- (C) 17
- (D) 19



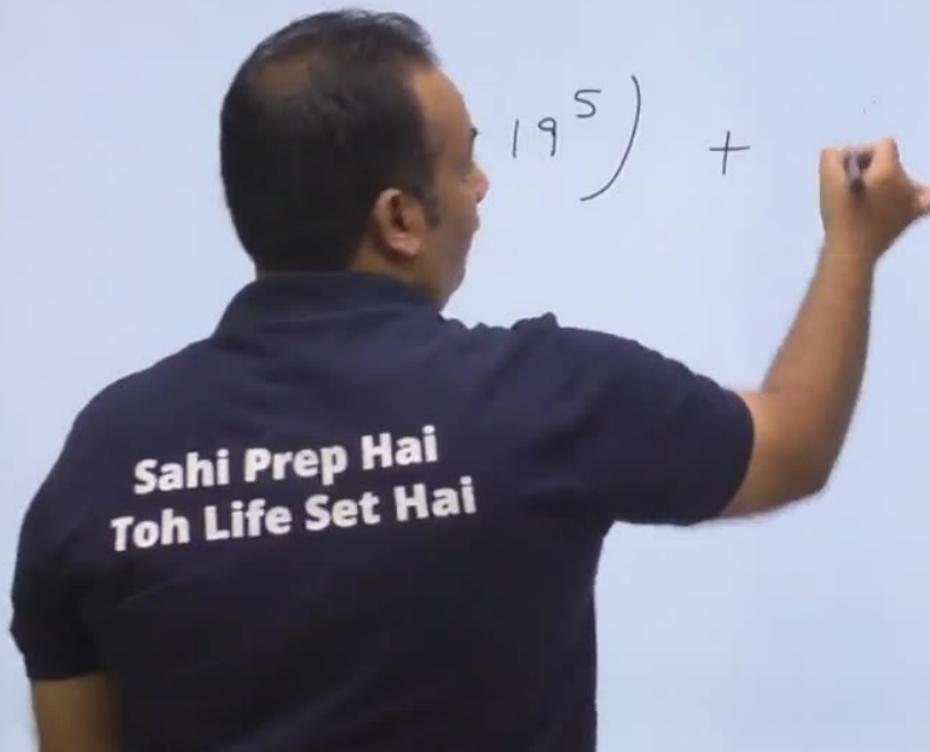
$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Re } m = ?$$



$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Re } m = ?$$



$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Re } m = ?$$



$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Re } m = ?$$

$$\left( \dots \right)^5 + \left( 17^5 + 18^5 \right)$$

↓

35

**Sahi Prep Hai  
Toh Life Set Hai**

$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Re } m = ?$$

$$(16^5 + 18^5) + (17^5 + 18^5)$$

↓

div by 35

$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Re } m = ?$$

$$(19^5) + (17^5 + 18^5)$$

↓

div by 35

Sahi Prep Hai  
Toh Life Set Hai

div by 35

$$\textcircled{E} + \textcircled{O} + \textcircled{E} + \textcircled{O} \rightarrow \textcircled{E}$$
$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Rem} = ?$$

$$\boxed{\left( 16^5 + 19^5 \right) + \left( 17^5 + 18^5 \right)}$$

div by 35

div by 35

div by 35

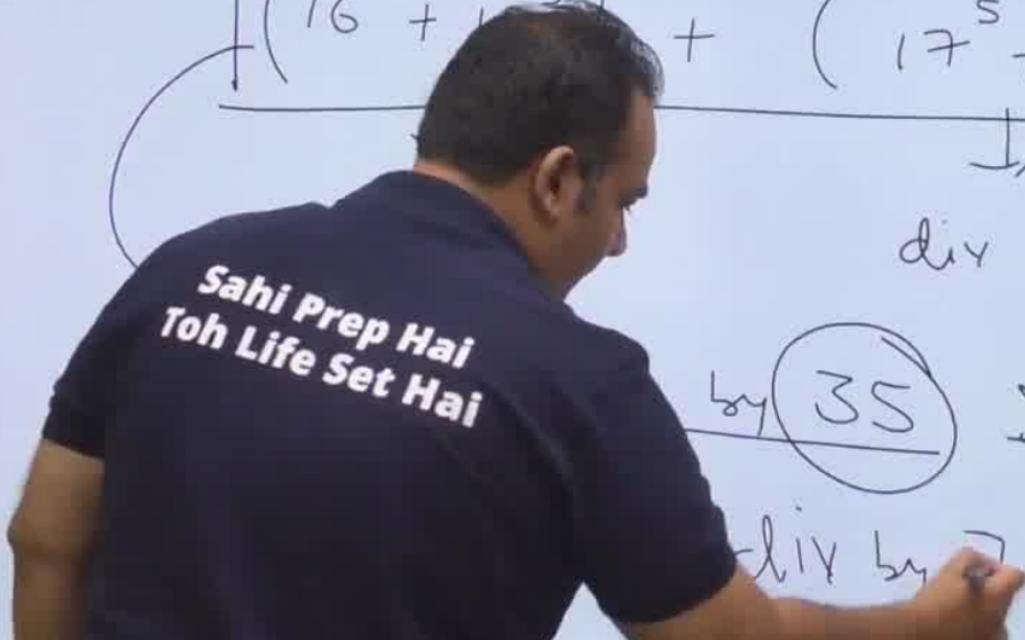
$$\textcircled{E} + \textcircled{O} + \textcircled{E} + \textcircled{O} \rightarrow \textcircled{E}$$
$$\frac{16^5 + 17^5 + 18^5 + 19^5}{70} \quad \text{Re } m = ?$$

$$\boxed{(16^5 + 18^5) + (17^5 + 19^5)}$$

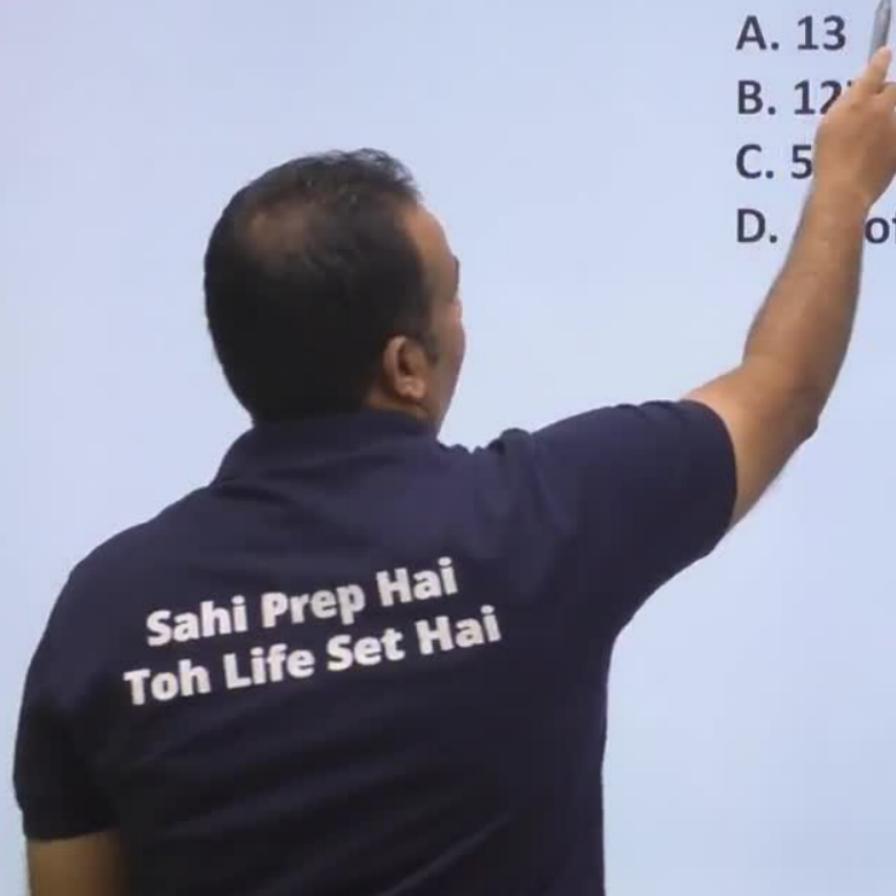
div by 35

$$\cancel{35} \rightarrow \text{div by } 2$$

-div by 7



- Q.  $7^{6n} - 6^{6n}$  is completely divisible by
- A. 13
  - B. 12
  - C. 5
  - D. All of these



$$7^{6n} - 6^{6n}$$

$$(7^3)^{2n} - (6^3)^{2n}$$

- Q.  $7^{6n} - 6^{6n}$  is completely divisible by
- A. 13
  - B. 127
  - C. 559
  - D. All of these



$$7^3 - 6^3 =$$

34

Sahi Prep Hai  
Toh Life Set Hai

$$7^{6n} - 6^{6n}$$

$$(7^3)^{2n} - (6^3)^{2n}$$

- Q.  $7^{6n} - 6^{6n}$  is completely divisible by
- A. 13
  - B. 127
  - C. 559
  - D. All of these

$$7^3 - 6^3 \Rightarrow 343 - 216 \Rightarrow 127 \checkmark$$

$$7^3 + 6^3 \Rightarrow$$

Sahi Prep Hai  
Toh Life Set Hai

$$7^{6n} - 6^{6n}$$

$$(7^3)^{2n} - (6^3)^{2n}$$

Q.  $7^{6n} - 6^{6n}$  is completely divisible by

A. 13

B. 127

C. 559

D. All of these

$$\rightarrow \text{dividing } 7^{6n} - 6^{6n} - 6^3 \Rightarrow 343 - 216 \Rightarrow 127 \checkmark$$

$$7^3 + 6^3 = 343 + 216 \Rightarrow 559 \quad \text{---}$$

$$(6^2)^{3n}$$

by  $7^2 - 6^2$

Sahi Prep Hai  
Toh Life Set Hai

Q.  $20^{2004} + 16^{2004} - 3^{2004} - 1^{2004}$  is divisible by

HOMEWORK

A 285

B 323

C 391

D All of these

# Successive Remainder

Meaning :



# Successive Remainder / Division

Meaning :

$$\begin{array}{r} Q_1 \\ \overrightarrow{|} \\ N \\ \hline R_1 \end{array}$$

# Successive Remainder / Division

Meaning :

$$\begin{array}{c} Q_1 \\ \hline N_1 \end{array} \quad \begin{array}{c} Q_1 \\ \hline N_2 \end{array}$$

$N_1$        $N_2$

$$\frac{R_1}{R_2}$$

Sahi Prep Hai  
Teh Little Set Hai

# Successive Remainder / Division

Meaning :

$$\begin{array}{c} Q_1 \\ \hline N \\ \hline R_1 \end{array}$$

$$\begin{array}{c} Q_2 \\ \hline N_1 \\ \hline Q_1 \\ \hline R_2 \end{array}$$

$$N_1 = Q_1 + R_1$$

*Sahi Prep Hai  
Toh Life Set Hai*

# Successive Remainder / Division

Meaning

$$\begin{array}{c} Q_1 \\ \hline N_1 \\ Q_2 \\ \hline N_2 \\ Q_1 \\ \hline R_2 \\ \hline Q_1 = ? \end{array}$$

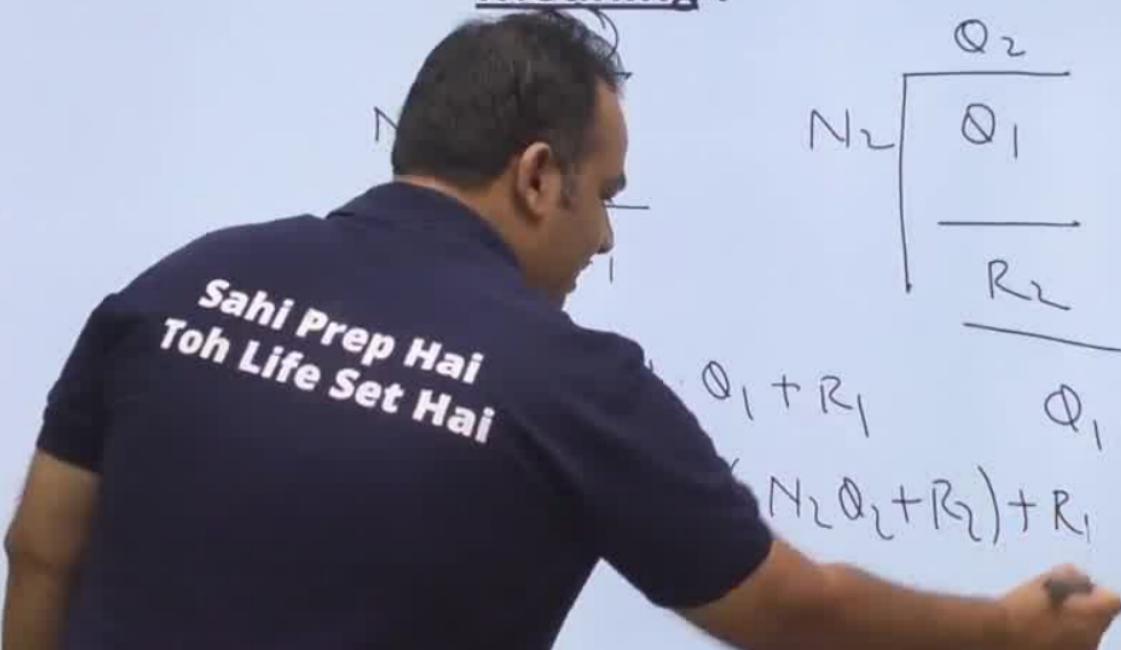
Sahi Prep Hai  
Toh Life Set Hai

# Successive Remainder / Division

Meaning :

$$\begin{array}{r} Q_2 \\ \hline N_2 \\ | \\ Q_1 \\ \hline R_2 \end{array}$$

$$\begin{aligned} & Q_1 + R_1 & Q_1 = N_2 Q_2 + R_2 \\ & (N_2 Q_1 + R_1) + R_1 \end{aligned}$$



AutoSave  OFF

7- Remainder... Search

Gradeup

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33

34

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Notes

12:04 PM 76%

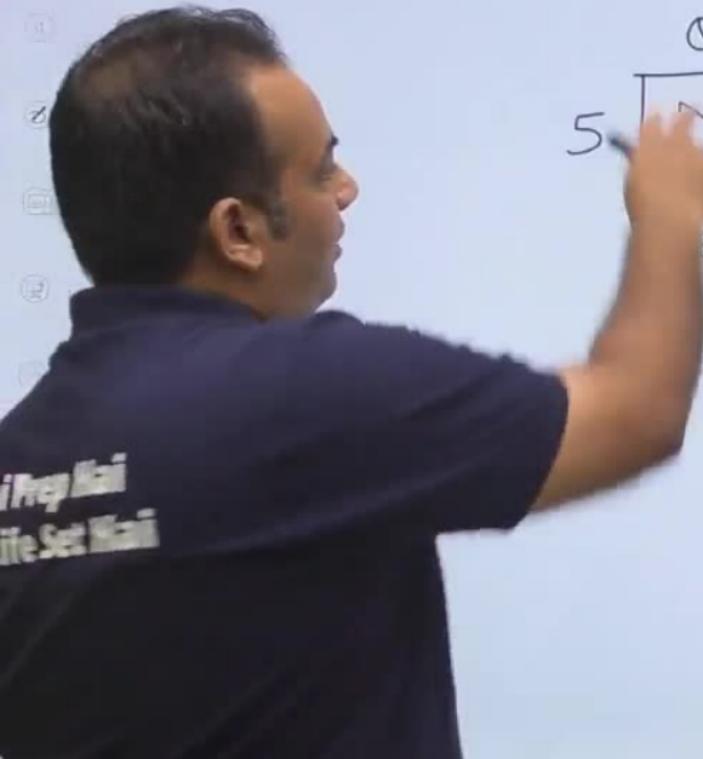
A person's arm is visible on the left side of the screen, pointing their index finger towards the top center of a Microsoft PowerPoint slide. The slide has a light blue background and features the 'gradeup' logo in the top-left corner. The main text on the slide is 'Click to add title' in a large, dark font, followed by a bullet point and the placeholder text 'Click to add text'. Below the slide, the ribbon menu is visible, showing options like File, Home, Insert, Draw, Design, Transitions, Animations, Slide Show, Review, View, MathType, Help, Share, and Comments. A small preview pane on the left shows other slides in the deck. The bottom of the screen displays the taskbar with various icons and the system tray.

A number on success



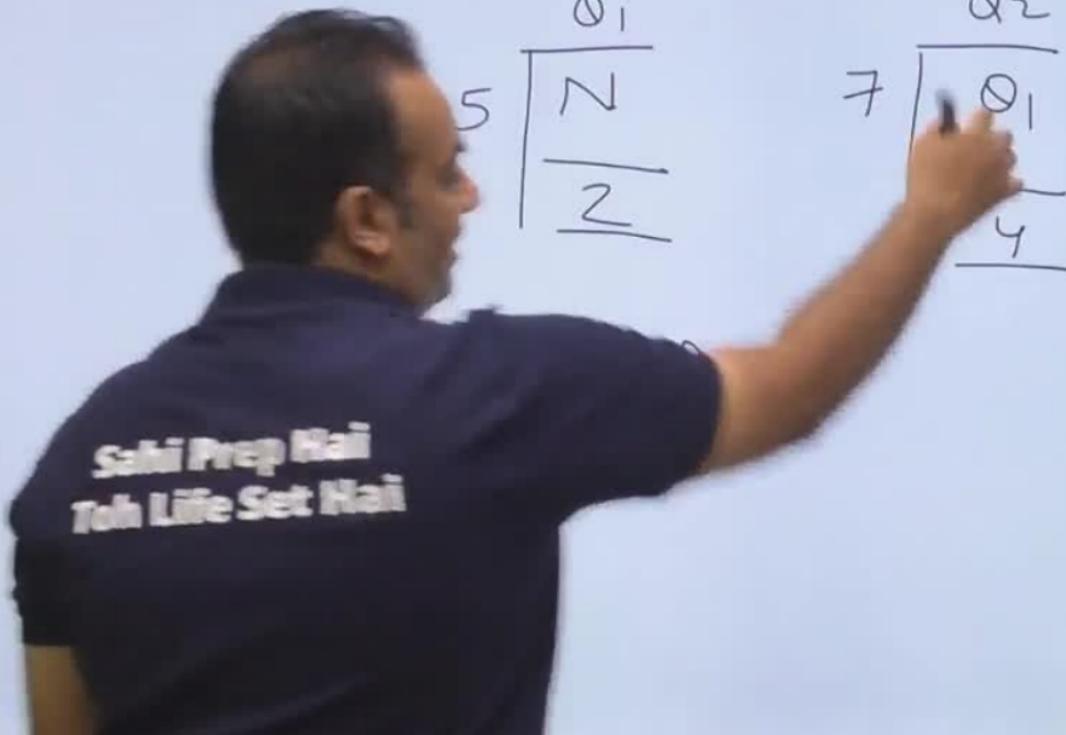
A number on successive division by 5 & 7 gives 284 as the remainder.

$$\begin{array}{r} 01 \\ \hline 5 \overline{)N} \\ \hline \end{array}$$



A number on successive division by 5 & 7 gives 2 & 4 as the remainder.

$$\begin{array}{r} Q_1 \\ 5 \overline{)N} \\ \hline 2 \end{array}$$
  
$$\begin{array}{r} Q_2 \\ 7 \overline{)Q_1} \\ \hline 4 \end{array}$$



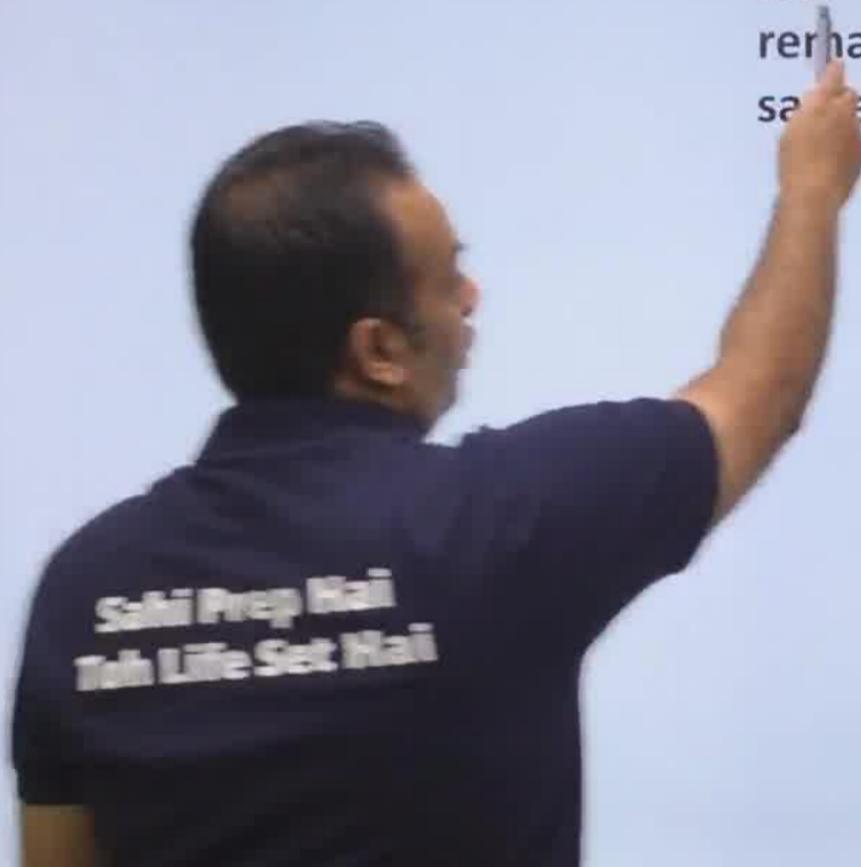
A number on successive division by 5 & 7 gives 2 & 4 as the remainder.

$$\begin{array}{r} \text{Q}_1 \\ 5 \overline{)N} \\ \underline{-2} \\ \text{Q}_1 \\ 7 \overline{)2} \\ \underline{-4} \end{array}$$

$$\begin{aligned} N &= 5\text{Q}_1 + 2 & \text{Q}_1 &= 7\text{Q}_2 + 4 \\ &= 5(7\text{Q}_2 + 4) + 2 & & \end{aligned}$$

$$\begin{aligned} \text{Q}_2 &\rightarrow \text{whole number} = 35\text{Q}_2 + 22 \\ \text{Q}_1, \text{Q}_2 &= \dots \end{aligned}$$

Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?

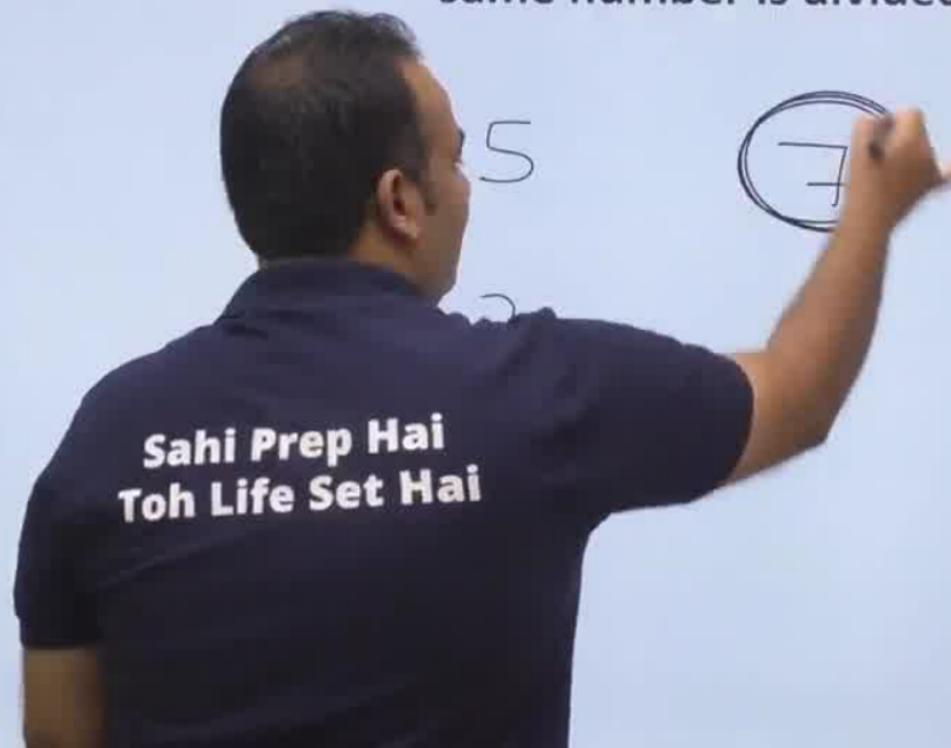


Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?

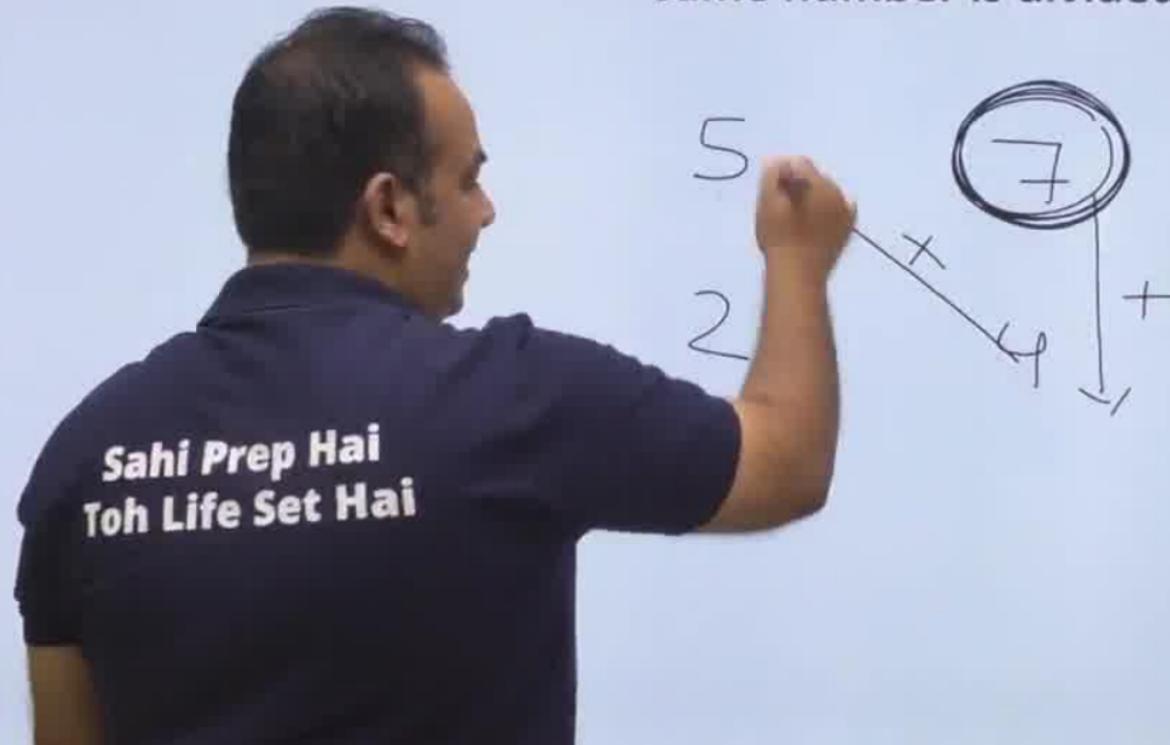
5      7  
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-

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Toh Life Set Hai**

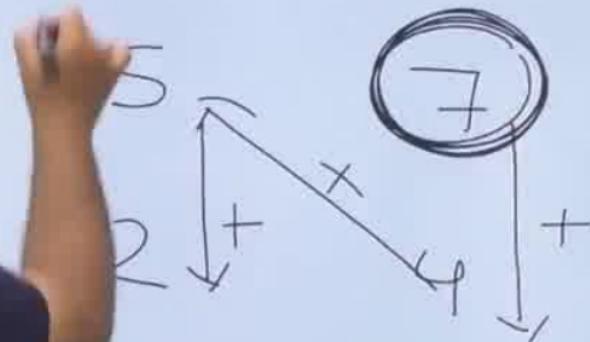
Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?



Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?

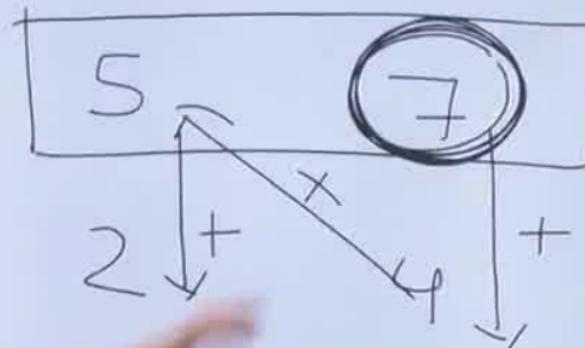


Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?

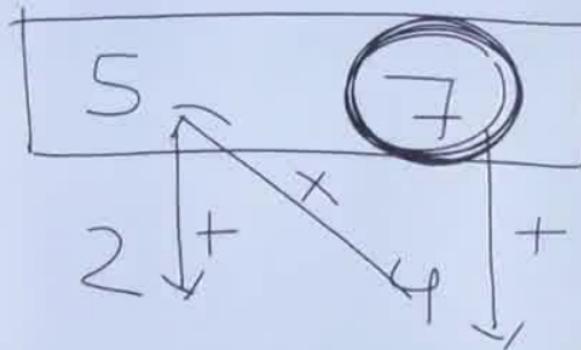


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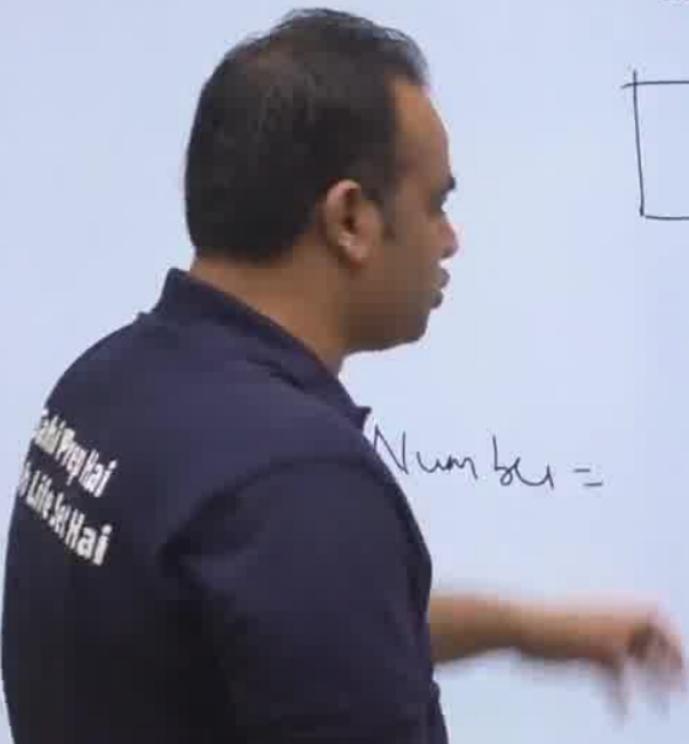
Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?



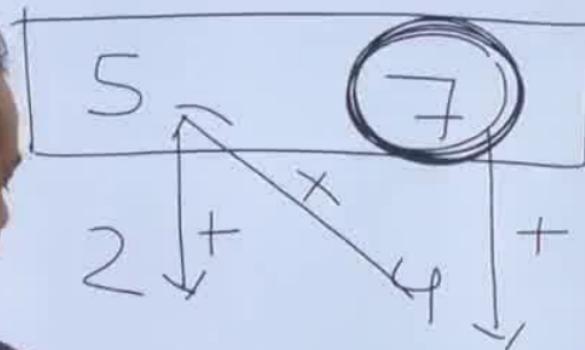
Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?



Number =



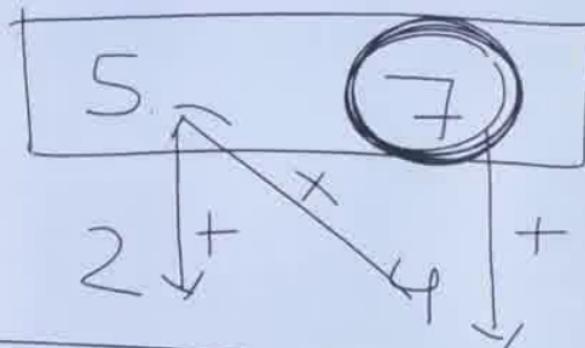
Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?



122

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Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?

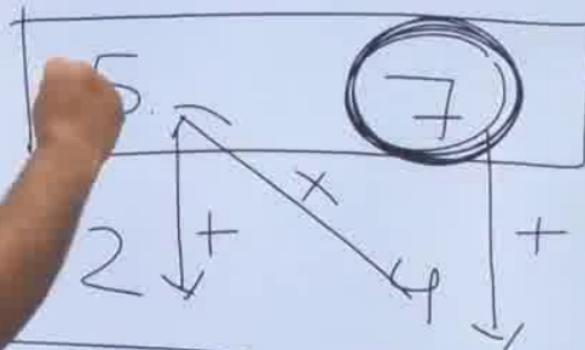


$$= 35m + 22$$

whole number

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Toh Life Set Hai

Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?

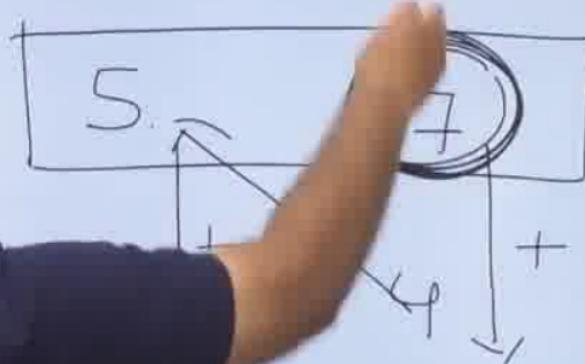


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$$n = 35m + 22$$

$m \rightarrow$  whole number

Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?

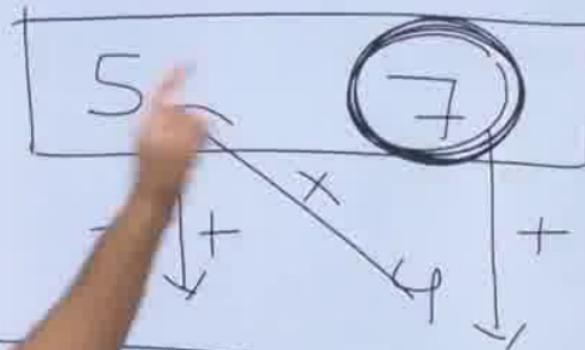


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... + 22

whole number

Eg. A number on successive division by 5 and 7 gives 2 and 4 as the successive remainder. Find the remainder when the same number is divided by 35?



$$5m + 22$$

$m \rightarrow$  whole number

A number on successive division by 5 & 7 gives 2 & 4 as the remainder.

$$\begin{array}{r} \text{Q}_1 \\ \hline 5 \Big| N \\ \hline \text{R}_1 \end{array} \quad = \quad \begin{array}{r} \text{Q}_2 \\ \hline \text{Q}_1 \\ \hline \text{R}_2 \end{array}$$

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$$\begin{aligned}
 & \text{N} = 5(\text{Q}_1 + 2) + 2 \\
 & \text{N} = 5(7\text{Q}_2 + 4) + 2 \\
 & \text{N} = 35\text{Q}_2 + 22
 \end{aligned}$$

A number on successive division by 5 & 7 gives 2 & 4 as the remainder.

$$\begin{array}{r} \text{Q}_1 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 2 \\ \hline 7 \quad \text{Q}_1 \\ \hline 4 \end{array}$$

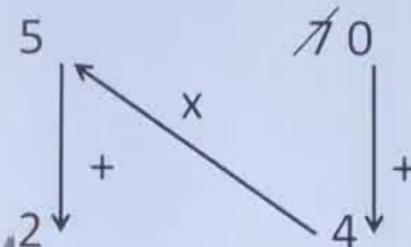
$$\text{Q}_1 = 7\text{Q}_2 + 4$$

$$(7\text{Q}_2 + 4) + 2$$

$$35\text{Q}_2 + 22$$

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## Short Cut

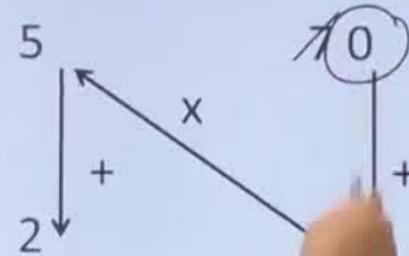


22 + 35 M

General form

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## Short Cut



22 + M

Sahi Prep Hai  
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General form

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39

1

2

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O E G Notes P

12:10 PM 76%

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(b)

(c)

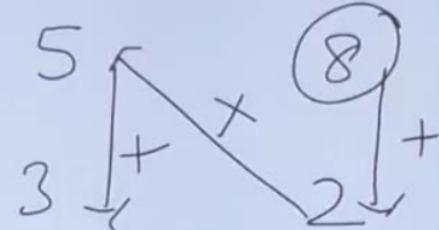
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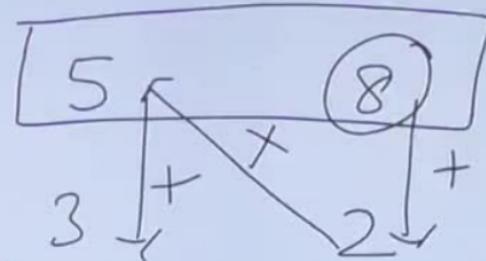
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eg

 13 !

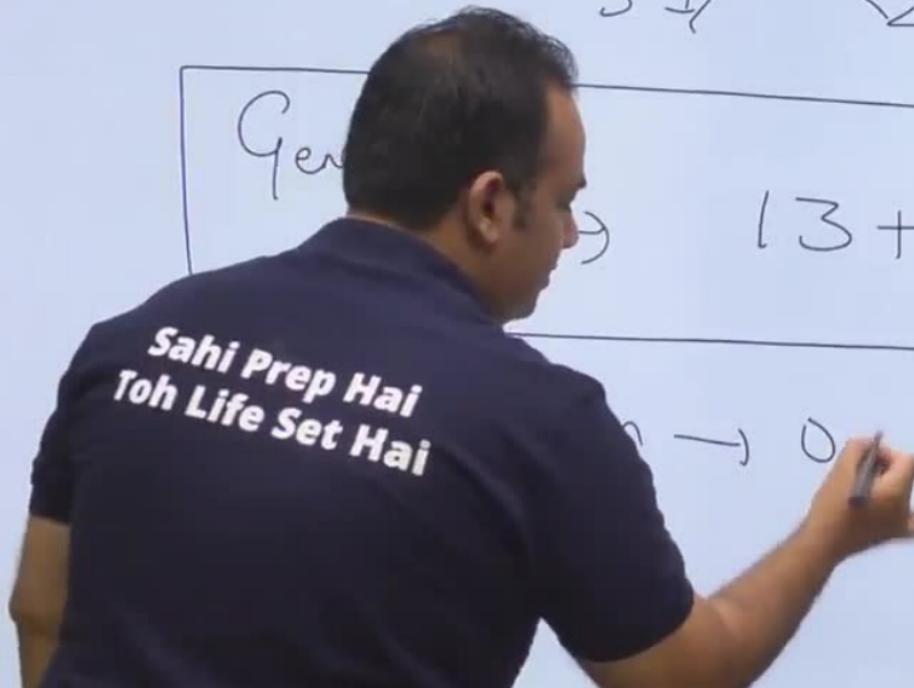
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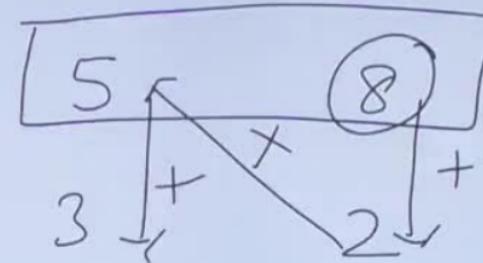


Gen  $\rightarrow 13 + 40m$

A diagram illustrating a comparison or operation between two numbers. The number '9' is in a box labeled 'Gen'. An arrow points from this box to another box containing the expression '13 + 40m'.



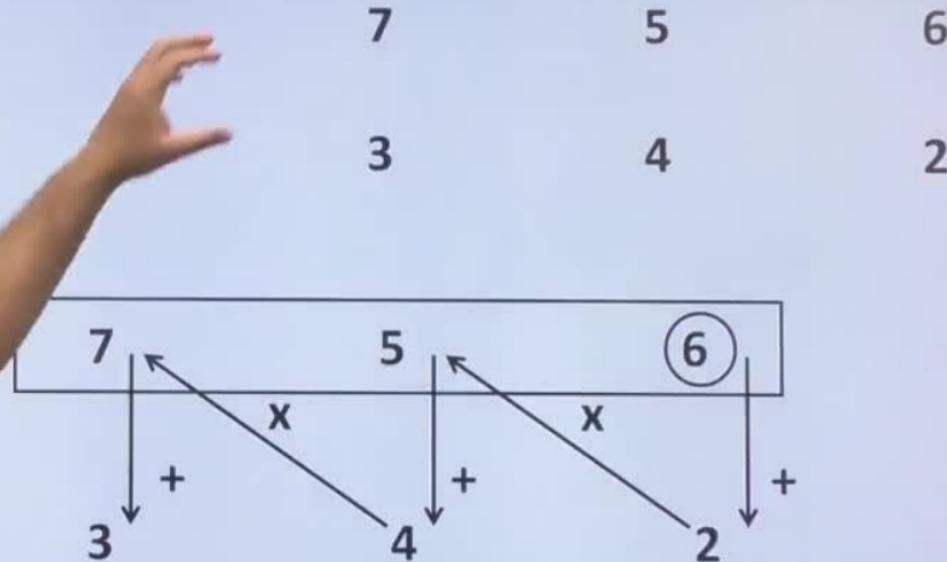
eg



General  
Form  $\rightarrow 13 + 4m$

$m \rightarrow 0, 1, 2, \dots$

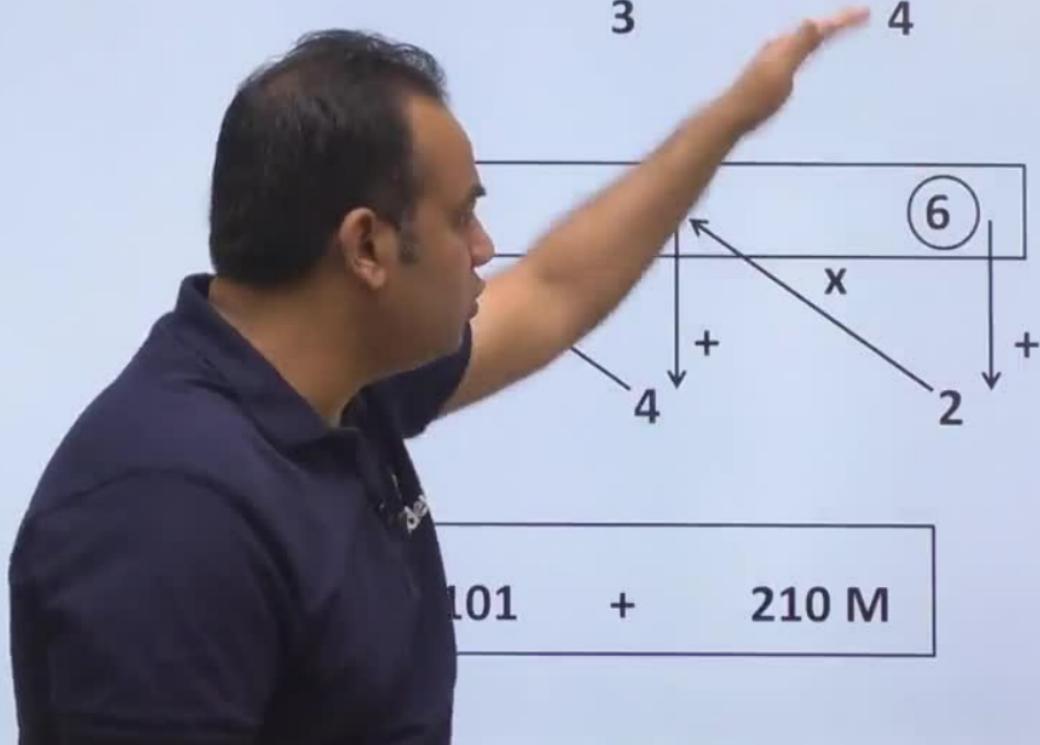
Eg.



$$101 + 210 \text{ M}$$

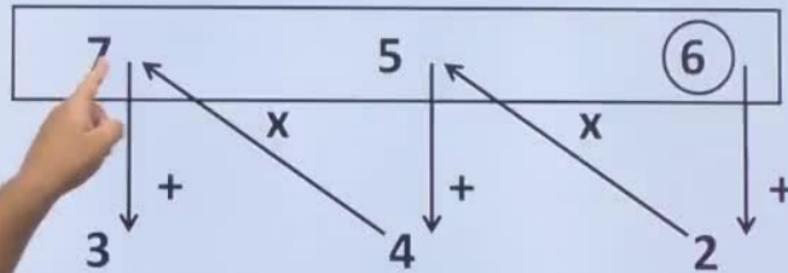
Eg.

7            5            6  
3            4            2

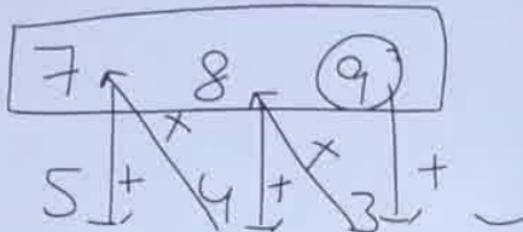


Eg.

7                    5                    6  
3                    4                    2



$$101 + 210 \text{ M}$$

P4Q of  
SSC

Q. If a number is successively divided by 7, 8 and 9, then the respective remainders are 5, 4 and 3. If the number is divided by 504, what will be the remainder?

- (A) 210
- (B) 201
- (C) 12
- (D) None of these

General Form  $\Rightarrow \textcircled{201} + \cancel{5xym}$

504

Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

- (A) 4, 1                      (B) 3, 2
- (C) 2, 3                      (D) 1, 2

P40

Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

- (A) 4, 1
- (B) 3, 2
- (C) 2, 3
- (D) 1, 2

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Toh Life Set Hai

P4Q

Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

- (A) 4, 1                      (B) 3, 2  
(C) 2, 3                      (D) 1, 2

General  
Form →

Let

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$$\begin{array}{r} 3 \\ 5 \overline{)17} \end{array}$$

P4Q

Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

- (A) 4, 1                          (B) 3, 2  
~~(C) 2, 3~~                          (D) 1, 2

General  
Form

+ 20m

$$\begin{array}{r} 3 \\ \text{---} \\ 5 | 17 \\ \text{---} \\ 15 \\ \text{---} \\ 2 \end{array}$$

2,

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P4Q

Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

- (A) 4, 1                      (B) 3, 2  
(C) 2, 3                      (D) 1, 2

General  
Form

20m

$$\begin{array}{r} 3 \\ 5 \overline{)17} \\ 15 \end{array}$$

$$\begin{array}{r} 3 \\ 4 \overline{)R=3} \end{array}$$

21

P4Q

Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

- (A) 4, 1      (B) 3, 2  
 (C) 2, 3      (D) 1, 2

General

$$\text{Form } \rightarrow 17 + 20m$$

$$\text{Let } m = 0$$

$$N = 17$$



$$\begin{array}{r} 5 \\ \hline 17 \\ -15 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 3 \\ \hline 4 \\ R=3 \end{array}$$

2,

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Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

(A) 4, 1      (B) 3, 2  
(C) 2, 3      (D) 1, 2

General form  $\rightarrow 17 + 20m$

Let  $m = 0$   
 $N = 17$

$$\begin{array}{r} 3 \\ 5 \overline{)17} \\ 15 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 3 \\ 4 \overline{)17} \\ 12 \\ \hline 5 \\ 4 \\ \hline 1 \end{array}$$
 R = 3

2,

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Q. Numbers 11284 and 7655 on division by a 3 digit number, gives the same remainder. Find the 3 digit number.

- (A) 199                      (B) 197
- (C) 193                      (D) 191

PYQ

Q. If a number is successively divided by 4 and 5, then the respective remainders are 1 and 4. If the number is successively divided by 5 and 4, then the remainder are:

- (A) 4, 1                              (B) 3, 2  
~~(C) 2, 3~~                              (D) 1, 2

General  
Form →

left

$$\begin{array}{r} 3 \\ 5 \overline{)17} \\ 15 \\ \hline 2 \end{array}$$

$$\frac{3}{4} R=3$$

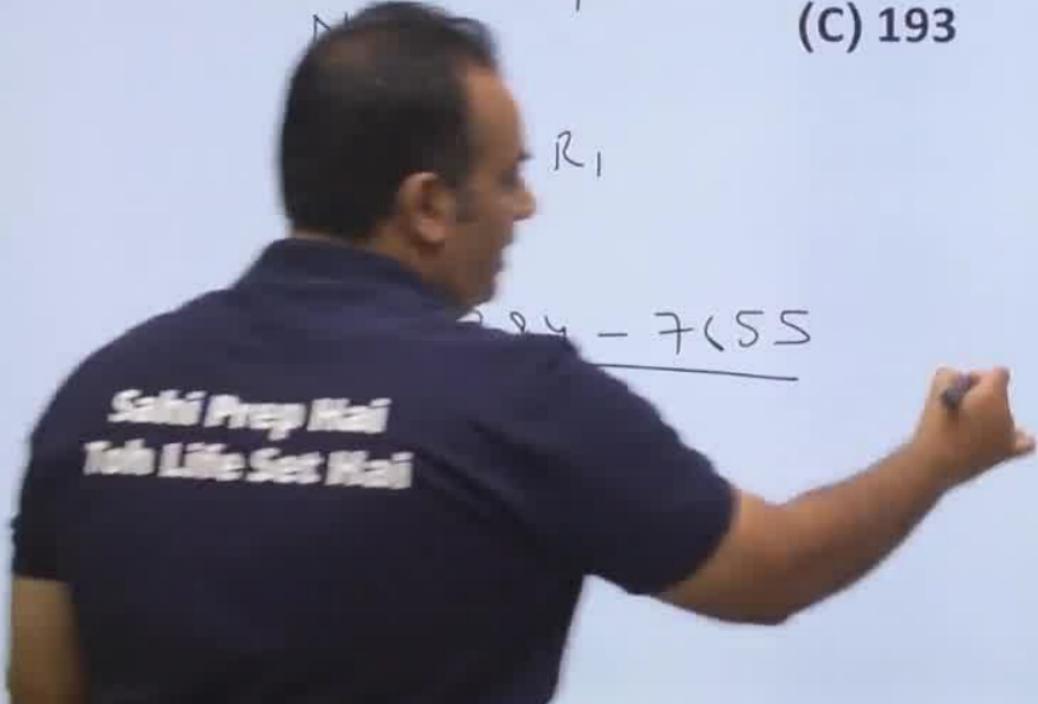
2,

PYQ

$$\begin{array}{r} 11284 \\ \hline N \\ \text{Rem} \\ R_1 \end{array}$$

Q. Numbers 11284 and 7655 on division by a 3 digit number, gives the same remainder. Find the 3 digit number.

- (A) 199                    (B) 197  
(C) 193                    (D) 191



PYQ

$$\begin{array}{r} 11284 \\ \hline N \end{array}$$

Rem $R_1$ 

$$\begin{array}{r} 7655 \\ \hline N \end{array}$$

Q. Numbers 11284 and 7655 on division by a 3 digit number, gives the same remainder. Find the 3 digit number.

- (A) 199                      (B) 197  
(C) 193                      (D) 191

55

Rem

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PYQ

Q. Numbers 11284 and 7655 on division by a 3 digit number, gives the same remainder. Find the 3 digit number.

- (A) 199                          (B) 197  
(C) 193                          (D) 191

$$\begin{array}{r} 11284 \\ \hline N \\ 70 \end{array}$$

Rem  
R<sub>1</sub>

7655

Rem = 0

$$\begin{array}{r} 29 \\ \hline \end{array}$$

Rem = 0

$$\begin{array}{r} 191 \\ \hline 3629 \\ 19 \\ \hline 172 \\ 171 \\ \hline 19 \\ 19 \\ \hline 0 \end{array}$$

PYQ

Q. Numbers 11284 and 7655 on division by a 3 digit number, gives the same remainder. Find the 3 digit number.

(A) 199

(B) 197

(C) 193

(D) 191

$$\begin{array}{r} 11284 \\ \hline N \end{array}$$

Rem $R_1$ 

$$\begin{array}{r} 655 \\ \hline N \end{array}$$

 $R_1$ 

$$\begin{array}{r} 11284 - 7655 \\ \hline N \end{array}$$

Rem = 0

$$\begin{array}{r} 3629 \\ \hline N \end{array}$$

Rem = 0

$$\begin{array}{r} 191 \\ \hline 3629 \\ 19 \\ \hline 172 \\ 171 \\ \hline 19 \\ 19 \\ \hline 0 \end{array}$$

PYQ

Q. Numbers 11284 and 7655 on division by a 3 digit number, gives the same remainder. Find the 3 digit number.

(A) 199

(B) 197

(D) 191

$$\begin{array}{r} 11284 \\ \hline N \end{array}$$

RemR<sub>1</sub>

$$\begin{array}{r} 7655 \\ \hline N \end{array}$$

R<sub>1</sub>

$$\begin{array}{r} 11284 - \\ \hline \end{array}$$

Rem = 0

3

$$\begin{array}{r} 191 \\ \hline \end{array}$$

$$\begin{array}{r} 3629 \\ 19 \\ \hline 172 \end{array}$$

$$\begin{array}{r} 172 \\ 19 \\ \hline 13 \end{array}$$

$$\begin{array}{r} 13 \\ 19 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 18 \\ 19 \\ \hline 18 \end{array}$$

Q48 Q. When a number X is divided by a certain divisor the remainder is 17 and when another number Y is divided by the same divisor, the remainder is 13. If the sum of both the numbers is divided by the same divisor, the remainder is 10. Find the divisor.

$$\frac{X}{d}$$

$$\text{Rem} = 17$$

$$\frac{Y}{d}$$

$$\text{Rem} = 13$$

A. 20

B. 23

C. 27

D. 30

$$\frac{X+Y}{d}$$

$$\text{Rem} = 10$$

$$\frac{30}{d}$$

$$\text{Rem} = 10$$



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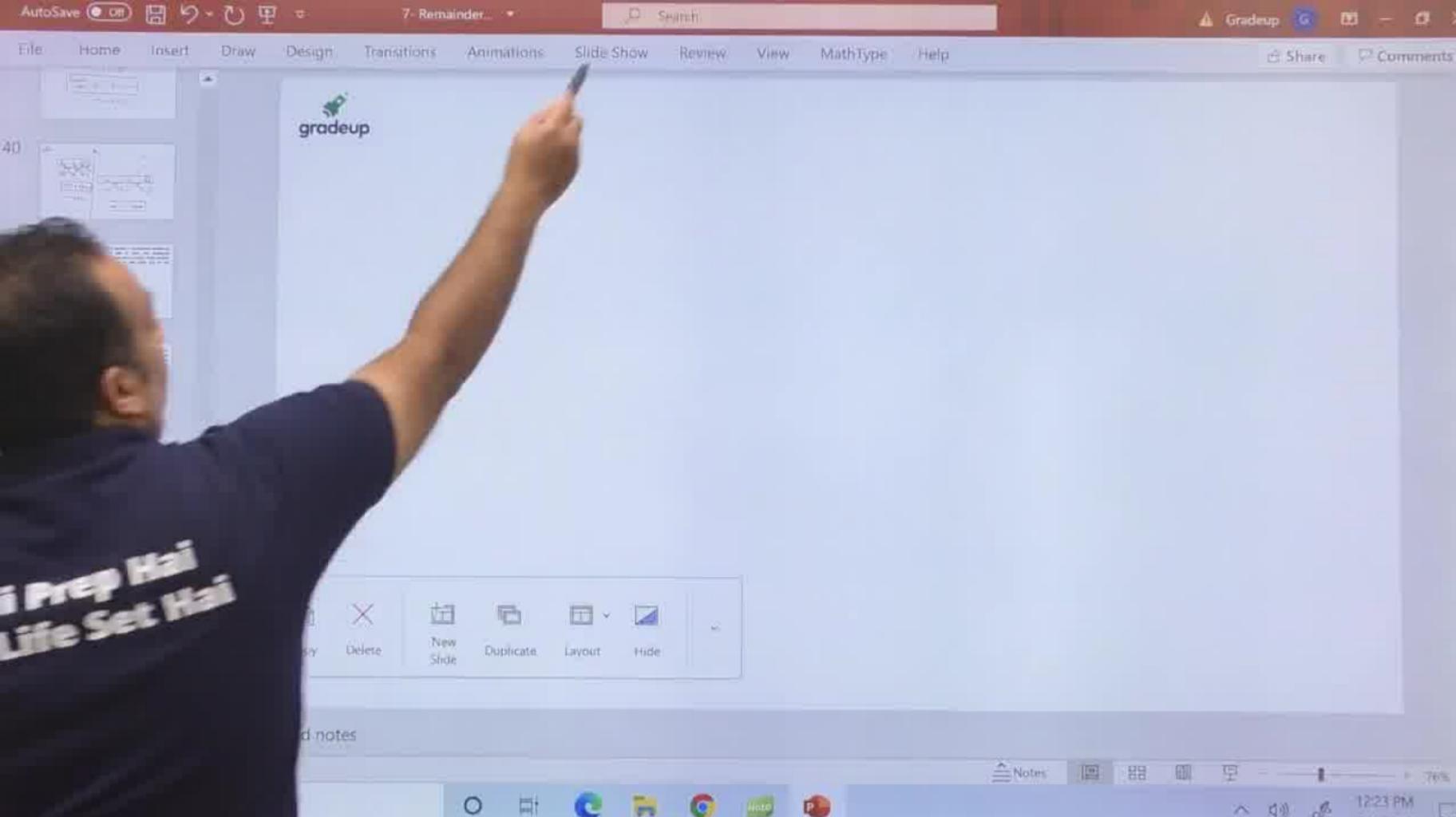
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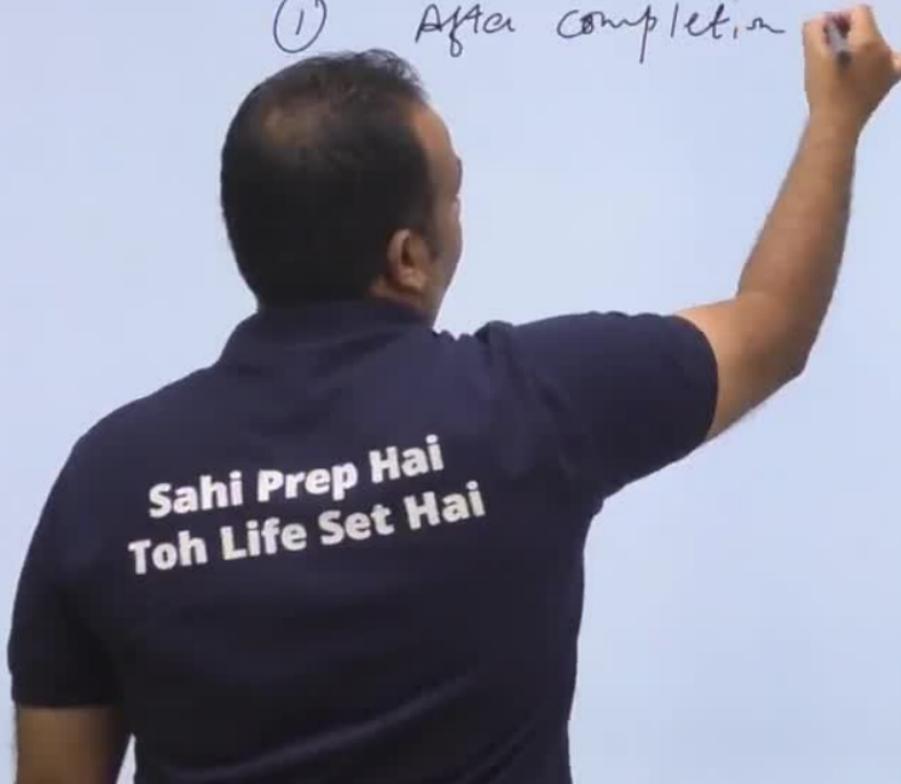
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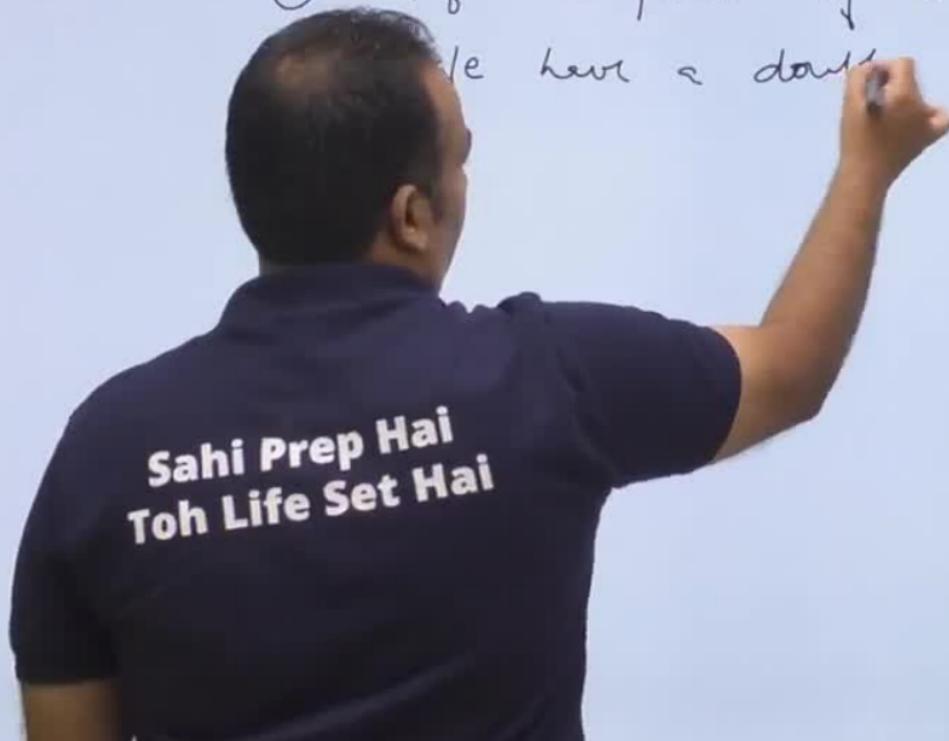
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① After completion



For doubts

- ① After completion of a chapter  
we have a doubt



For doubts

- ① After completion of a chapter  
We have a doubt session

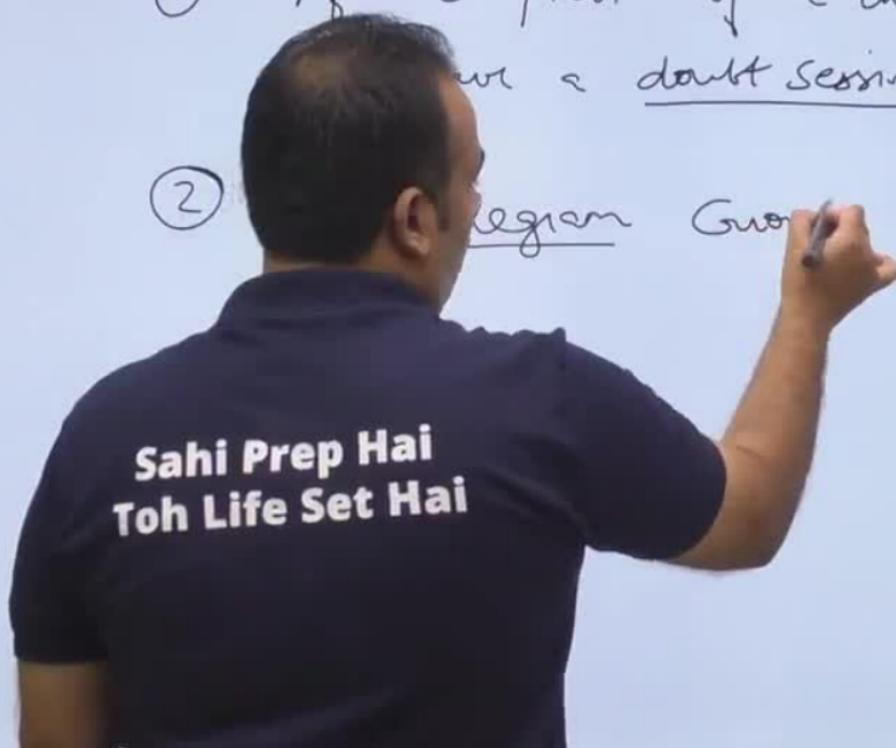
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have a doubt session

- ② Begin Group



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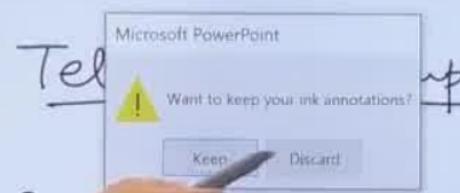
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①

After completion of a chapter  
We have a doubt session

②



③

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