

NUMBER SYSTEM

(Remainder Theorem)

NO. OF QUESTIONS	MAXIMUM DAYS	CLASS DURATION
10 Questions	1 DAY	2 HOURS

$$\begin{array}{r}
 10 \overline{) 1987} \\
 \underline{10} \\
 98 \\
 \underline{90} \\
 87 \\
 \underline{80} \\
 7
 \end{array}$$

last digit
[unit digit]

$$\begin{array}{r}
 100 \overline{) 1987} \\
 \underline{100} \\
 987 \\
 \underline{900} \\
 87
 \end{array}$$

remainder
[last 2 digits]

Note:-

if divided by 10

$R \rightarrow$ unit digit

if divided by 10^2

$R \rightarrow$ last 2 digit

and so on.

CLASS EXERCISE

Find the last two digit of the following Expressions :

I) find last 2 digit of- $1298 \times 97 \times 102 \times 21298$. (SSC CGL 2016)

Ans 76

II) Find the last 2 digit of- $98 \times 1797 \times 103 \times 101$. (SSC CHSL 2016)

Ans 18

III) The digit of Hundredth Place of $17!$? (CGL Mains 2016)

Ans 0

IV) Find the last 2 digit of the expression .

$$1! + 2! + 3! + 4! + \dots + 100!$$

Ans 13

(SSC CGL Mains 2017)

$$-2 \quad -3 \quad +2 \quad -2$$

$$\underline{1298 \times 97 \times 102 \times 21298}$$

100

$$R = -24$$

or $+76$

CLASS EXERCISE

Find the last two digit of the following Expressions :

I) find last 2 digit of- $1298 \times 97 \times 102 \times 21298$. (SSC CGL 2016)

Ans 76

II) Find the last 2 digit of- $98 \times 1797 \times 103 \times 101$. (SSC CHSL 2016)

Ans 18

III) The digit of Hundredth Place of $17!$? (CGL Mains 2016)

Ans 0

IV) Find the last 2 digit of the expression .

$$1! + 2! + 3! + 4! + \dots + 100!$$

(SSC CGL Mains 2017)

Ans 13

$$\begin{matrix} (-2) & (-3) & (+3) & (+1) \end{matrix}$$

$$98 \times 1797 \times 103 \times 101$$

$$100$$

$$R = +18$$

CLASS EXERCISE

Find the last two digit of the following Expressions :

I) find last 2 digit of- $1298 \times 97 \times 102 \times 21298$. (SSC CGL 2016)

II) Find the last 2 digit of- $98 \times 1797 \times 103 \times 101$. (SSC CHSL 2016)

III) The digit of Hundredth Place of $17!$? (CGL Mains 2016)

IV) Find the last 2 digit of the expression

$$1! + 2! + 3! + 4! + \dots + 100!$$

(SSC CGL Mains 2017)

Ans 16

Ans 18

Ans 0

Ans 13

$R = ?$

$$1 \times 2 \times 3 \times 4 \times 5 \times \dots \times 10 \times \dots \times 15 \times 16 \times 17$$

1000

$R = 0$

$R = 000$

CLASS EXERCISE

Find the last two digit of the following Expressions :

I) find last 2 digit of- $1298 \times 97 \times 102 \times 21298$. (SSC CGL 2016)

Ans 76

II) Find the last 2 digit of- $98 \times 1797 \times 103 \times 101$. (SSC CHSL 2016)

Ans 18

III) The digit of Hundredth Place of $17!$? (CGL Mains 2016)

Ans 0

IV) Find the last 2 digit of the expression .

$$1! + 2! + 3! + 4! + \dots + 100!$$

(SSC CGL Mains 2017)

Ans 13

$$\textcircled{1} \quad \textcircled{2} \quad \textcircled{6} \quad \textcircled{24} \quad \textcircled{20} \quad \textcircled{20} \quad \textcircled{40}$$

$$1! + 2! + 3! + 4! + 5! + 6! + 7! +$$

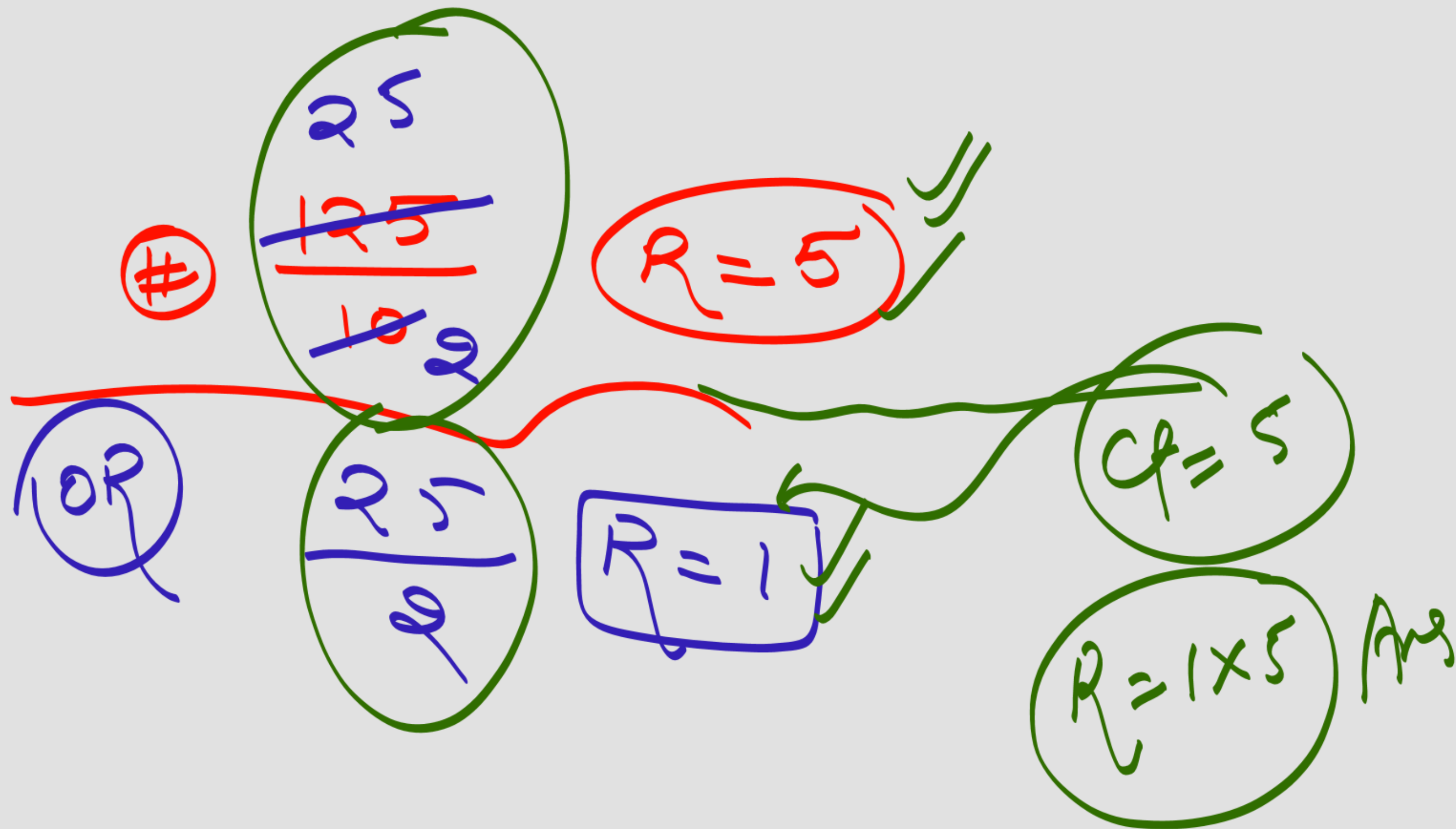
$$100 \quad 8! + 9! + 10!$$

$$\textcircled{20} \quad \textcircled{20} \quad 0$$

$$R = 13$$

Ans

Concept of Common Factor Elimination :



Note:-

(R) निर्यातों समुप

(CF)

हैं eliminate

नहीं

कर सकते

But eliminate

(CF)

करना

जरूरी है तो

multiple

से बाद में करके

Original (R)

बनकर

निर्यातों जा
हैं

CLASS EXERCISE

Find the last 2 digit of the expression :

1. $1398 \times 96 \times 73 \times 148 \times 26$. (SSC CGL Mains 2016)

Ans

$= 32$

2. $103 \times 1298 \times 13072 \times 48$. (SSC Pre 2019)

Ans = 64

3. $13978 \times 396 \times 52 \times 27$. (SSC CGL Mains 2015 , 2018)

Ans = 52

4. $13776 \times 398 \times 53 \times 76 \times 27$.

Ans = 88

Handwritten notes for problem 1:
 $\textcircled{-2}$ $\textcircled{-1}$ 24 $\textcircled{-2}$ $\textcircled{-2}$ $\textcircled{+1}$

Handwritten calculation for problem 1:
 $1398 \times 96 \times 73 \times 148 \times 26$

Handwritten calculation for problem 2:
 100×25

Handwritten calculation for problem 4:
 $R = +8 + 4$
 $+32$

Handwritten calculation for problem 4:
 $25 \times 50 \times 75 \times 25$

Handwritten calculation for problem 4:
 $4 = 4$

CLASS EXERCISE

Find the last 2 digit of the expression :

1. $1398 \times 96 \times 73 \times 148 \times 26$. (SSC CGL Mains 2016)
 = 32

Ans

2. $103 \times 1298 \times 13072 \times 48$. (SSC Pre 2019)

Ans = 64

3. $13978 \times 396 \times 52 \times 27$. (SSC CGL Mains 2015 , 2018)
 Ans = 52

4. $13776 \times 398 \times 53 \times 76 \times 27$.

Ans = 88

Handwritten calculations for problem 2:

$$103 \times 1298 \times 13072 \times 48$$

Annotations: (3), (-2), (-3), 12

Annotations: ~~100~~, 25

Annotations: $R = \frac{+216}{25}$, $R = \frac{16 \times 9}{25}$

Handwritten calculation: $C \approx 9$

CLASS EXERCISE

5. $12998 \times 35 \times 24 \times 23$. (SSC CGL Mains 2018)

= 60

Ans

6. $39 \times 55 \times 57 \times 24 \times 13872 \times 9871$. (SSC CGL Mains 2019)

Ans = 20