

KGS



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By :- P.K Sir

REMAINDER THEOREM

शेषफल प्रमेय



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Remainder theorem

→ शेषफल प्रमेय

$$\frac{17}{5} \boxed{R \rightarrow 2}$$

भाजक 5) भाज्य 17 (3 भागफल
15
२ शेषफल

$$5 \begin{array}{r} 17 \\ -20 \\ \hline -3(R) \end{array} (4$$

$$\boxed{\text{भाज्य} = \text{भाजक} \times \text{भागफल} + \text{शेषफल}}$$

$$\textcircled{1} \frac{17}{5} \begin{cases} \rightarrow R=+2 \\ \rightarrow R=-3 \end{cases}$$

$$\textcircled{4} \frac{53}{9} \begin{cases} \rightarrow R=+8 \\ \rightarrow R=-1 \end{cases}$$

$$\textcircled{2} \frac{27}{6} \begin{cases} \rightarrow R=+3 \\ \rightarrow R=-3 \end{cases}$$

$$\textcircled{3} \frac{38}{8} \begin{cases} \rightarrow R=+6 \\ \rightarrow R=-2 \end{cases}$$

odd no. (विषम सं०)
 (i) (-) \longrightarrow -ve

(ii) (-) Even no. (सम सं०)
 \longrightarrow +ve

Negative Remainder theorem

Eg. $\textcircled{1} \frac{\textcircled{1}^{148}}{13} \quad R = (1)^{148} = 1$

Rem \rightarrow 1 Ans

$\textcircled{2} \frac{(-1)^{148}}{13} \quad \text{Rem} = (-1)^{148} = +1$

Rem \rightarrow 1 Ans

$$\textcircled{2} \frac{\overset{-1}{(84)}^{327}}{17} R = (-1)^{327} = \boxed{-1}$$

$$\text{Rem} \rightarrow 17 - 1 = \underline{\underline{16 \text{ Ans.}}}$$

$$\textcircled{3} \frac{\overset{\ominus}{(89)}^{123}}{10} R = (-1)^{123 (\text{odd no.})} = -1$$

$$\text{Rem} \rightarrow 10 - 1 = \underline{\underline{9 \text{ Ans.}}}$$

± 1 Remainder theorem

Note: किसी भी संख्या को Remainder (-ve) में नहीं होता है।
यदि शेषफल -ve में ही तो जिस सं भाग दे रहे हैं उसी सं सं सिर्फ -ve वाली सं को धरा देंगे।

$$\# \begin{array}{r} 5 \overline{) 30} \quad (6 \\ \underline{30} \\ 0 \end{array} \quad (R)$$

$$\boxed{\text{Remainder} = 0}$$

$$\frac{30}{5} \boxed{R=0}$$

- ① शेषफल →
- ② भागफल →

$$\# \begin{array}{r} \text{भाजक} \quad \text{भाज्य} \\ 7 \overline{) 1429} \quad \text{भागफल} \\ \underline{14} \quad (204 \\ \underline{0} \\ 29 \\ \underline{28} \\ \underline{0} \\ 29 \\ \underline{28} \\ \underline{0} \\ 1 \end{array}$$

$$\# \frac{12}{17} \quad \boxed{R=12}$$

$$\begin{array}{r} 17 \overline{) 12} \quad (0 \\ \underline{0} \\ 12 \end{array} \quad (R)$$

$$\frac{17}{28} \quad \boxed{R=17}$$

$$\# \quad \frac{-35}{8} R = -3$$

$$\begin{aligned} \text{Rem} &= 8 - 3 \\ &= \underline{\underline{5 \text{ Ans.}}} \end{aligned}$$

$$\# \quad \frac{-47}{15} R = -2$$

$$\begin{aligned} \text{Rem} &\rightarrow 15 - 2 \\ &= \underline{\underline{13 \text{ Ans.}}} \end{aligned}$$

Simplified Remainder theorem

$$\textcircled{1} \quad \frac{27}{18} R=9$$

$$\boxed{9} \quad \frac{\frac{27}{18}^3}{2} = \frac{3}{2} \boxed{R \rightarrow 1}$$

$$\begin{aligned} \text{Rem} &\rightarrow 1 \times 9 \\ &= \underline{\underline{9 \text{ Ans.}}} \end{aligned}$$

$$\begin{array}{r} 18 \overline{) 27} \quad (1 \\ -18 \\ \hline 9 \end{array}$$

$$\textcircled{2} \quad \frac{35}{28} \boxed{R \rightarrow 7}$$

$$\boxed{7} \quad \frac{\frac{35}{28}^5}{4} \rightarrow \frac{5}{4} \boxed{R=1}$$

$$\begin{aligned} \text{Rem} &\rightarrow 1 \times 7 \\ &= \underline{\underline{7 \text{ Ans.}}} \end{aligned}$$

01.

On dividing a number by 38, the quotient is 24 and the remainder is 13, then the number is :

किसी संख्या को 38 से भाग देने पर भागफल 24 तथा शेषफल 13 आता है। वह संख्या कौन-सी है?

~~(a) 925~~

~~(c) 904~~

(b) 975

~~(d) 956~~

$$\begin{array}{r} 38 \text{ भाजक} \\ \overline{) 925} \\ 24 \text{ भागफल} \\ \underline{912} \\ 13 \text{ शेषफल} \end{array}$$

$$\begin{aligned} \text{भाज्य} &= \text{भाजक} \times \text{भागफल} + \text{शेषफल} \\ &= 38 \times 24 + 13 \\ &= 925 \end{aligned}$$