$$\sum_{n=3}^{\infty} \frac{x^n}{n \cdot 5^n} = ? \quad , \quad x_0 = \underline{\underline{0}} \quad , \quad a_n = \frac{1}{n \cdot 5^n}$$

$$\left(\sum_{1}^{\infty} \frac{(-1)^n}{n} = ? \right)$$

$$\lim_{n \to \infty} \left| \frac{a_{n+1}}{a_n} \right| = \lim_{n \to \infty} \frac{\frac{1}{(n+1) \cdot 5^{(n+1)}}}{\frac{1}{n \cdot 5^n}} =$$

$$= \lim_{n \to \infty} \frac{n \cdot 5^n}{(n+1) \cdot 5^{n+1}} = \lim_{n \to \infty} \frac{n}{(n+1) \cdot 5} = \frac{1}{5} \Rightarrow R = 5$$

$$\left(\sum_{3}^{\infty} \frac{x^n}{n \cdot 5^n}\right)' = \sum_{3}^{\infty} \frac{\cancel{n} \cdot x^{n-1}}{\cancel{n} \cdot 5^n} = \sum_{3}^{\infty} \frac{x^{n-1}}{5^n} =$$

$$= \frac{1}{5} \sum_{3}^{\infty} \left(\frac{x}{5}\right)^{n-1} = \left| \begin{array}{l} a_3 = \left(\frac{x}{5}\right)^2 \\ \\ q = \frac{x}{5} \end{array} \right| = \frac{1}{5} \cdot \frac{\left(\frac{x}{5}\right)^2}{1 - \frac{x}{5}} =$$

$x=0 \Rightarrow 0 = \frac{1}{25}\cdot\left(-25\cdot\ln 5\right)+c$

$$c=\ln 5$$

Tj.: $\sum_{3}^{\infty}\frac{x^n}{n\cdot 5^n} = \frac{-x^2}{50} - \frac{x}{5} - \ln|5-x| + \ln 5$

$= \ln\left|\frac{5}{5-x}\right| - \frac{x^2}{50} - \frac{x}{5}$