

$$I = (0-5, 0+5) = (-5, 5) = I_{\Delta K}$$

$$x = -5 \Rightarrow \sum_3^{\infty} \frac{(-5)^n}{n \cdot 5^n} = \sum_3^{\infty} \frac{(-1)^n}{n} \rightsquigarrow \textcircled{K}$$

$$x = 5 \Rightarrow \sum_3^{\infty} \frac{1}{n} \textcircled{D} \Rightarrow I_K = [-5, 5)$$

$$= \frac{1}{25} \cdot \frac{x^2}{5-x} \Rightarrow \sum_{n=3}^{\infty} \frac{x^n}{n \cdot 5^n} = \frac{1}{25} \cdot \int \frac{x^2}{5-x} dx =$$

$$= \frac{1}{25} \cdot \int -x-5 + \frac{25}{5-x} dx = \frac{1}{25} \cdot \left(-\frac{x^2}{2} - 5x - 25 \cdot \ln|5-x| \right) + C$$

$$\sum_{n=3}^{\infty} \frac{(-1)^n}{n} \Big|_{\alpha = -5} = \underbrace{\ln \frac{5}{10} - \frac{25}{50} + \frac{5}{5}}_{n=3 \rightarrow \infty} - \frac{1}{1} + \frac{1}{2}$$

$$= -\ln 2 - \frac{1}{2} + 1 - 1 + \frac{1}{2} = \underline{\underline{-\ln 2}}$$