$$\sum_{n=1}^{\infty} (-1)^n \frac{n^2}{n! \cdot 2^n}$$

$x \in (-\infty, \infty)$

- $$f(x) = \sum_{n=1}^{\infty} \frac{n^2}{n!} x^{n-1} \qquad x \to \frac{-1}{2}$$

$$F(x) = \sum_{n=1}^{\infty} \frac{n x^n}{n!} = x \underbrace{\sum_{n=1}^{\infty} \frac{n x^{n-1}}{n!}}_{g(x)}$$

$$G(x) = \sum_{n=1}^{\infty} \frac{x^n}{n!} = \underline{e^x - 1} \qquad g = G' = e^x$$

$$1 + \frac{x^1}{1!} + \frac{x^2}{2!}$$

$$F(x) = x e^x$$

$$\boxed{f = F' = e^x + x e^x}$$

- Pol konv. $$\sum_{n=1}^{\infty} \frac{n^2}{n!} x^{n-1} \qquad \cancel{\frac{1}{x} \cdot x^n}$$

$$a_n = \frac{(n+1)^2}{(n+1)!} \qquad x^k = x^{n-1}$$

$$k = n-1$$

$$R = \frac{1}{\limsup\limits_{n\to\infty} \sqrt[n]{\frac{(n+1)^2}{(n+1)!}}} \qquad k+1 = n$$

$$= \frac{1}{\text{“}\frac{1}{\infty}\text{”}} = \text{“}\frac{1}{0}\text{”} = \underline{\underline{\infty}}$$

Pracujeme na $x \in (-\infty, \infty)$

$$f(x) = \sum_{n=1}^{\infty} \frac{n^2}{n!} x^{n-1} \qquad f(x) = e^x + x e^x$$

$$? \sum_{n=1}^{\infty} \frac{n^2}{n!} \frac{(-1)^n}{2^n} \qquad -\frac{1}{2} \cdot f\left(-\frac{1}{2}\right) = \sum_{n=1}^{\infty} \frac{n^2}{n!} \frac{(-1)^{n-1}}{2^{n-1}} \cdot -\frac{1}{2}$$

$$L_3 = -\frac{1}{2}\left(e^{-1/2} + -\frac{1}{2}e^{-1/2}\right) =$$

$$= -\frac{1}{4}\frac{1}{\sqrt{e}}$$

Gdyby $x = \frac{1}{2}$

- $\sum_{n=1}^{\infty} \frac{n^2}{n!}\left(-\frac{1}{2}\right)^{n-1} \quad L\ ?$

  d'Ale $\rightarrow$ L :)

- $\lim_{x \to -\frac{1}{2}^+} f(x) = \sum_{n=1}^{\infty} \frac{n^2}{n!}\left(-\frac{1}{2}\right)^{n-1}$