Leibniz $\sum (-1)^n b_n$ k $b_n \to 0$

b_n monot. (n_0)

$$\sum_{n=0}^{\infty} \underbrace{\cos(n\pi)}_{(-1)^n} \underbrace{\frac{n^2}{n^3+16}}_{b_n}$$ Leibniz

$$\lim_{n\to\infty} \frac{n^2}{n^3+16} = \lim \underbrace{\frac{n^2}{n^3}}_{\to 0} \cdot \frac{1}{1+\frac{16}{n^3}} = 0$$

monot. • $a_{n+1} - a_n \geq 0$ $\frac{a_{n+1}}{a_n} \geq 1$

• $f(x) = \frac{x^2}{x^3+16}$ $x > 0$

$$f'(x) = \frac{-x^4+32x}{(x^3+16)^2}$$

$$\underbrace{x}_{>0}(32 - x^3)$$ $x > \sqrt[3]{32}$

tež $f' < 0$

$f \searrow$

$\boxed{\text{pro } n \geq 4 \quad b_n \searrow}$

Leibniz: $\sum \cos(n\pi) \frac{n^2}{n^3+16}$ k

$$\sum \underbrace{\sin(3n)}_{a_n} \cdot \underbrace{\frac{1}{n}}_{b_n}$$

$\sum \sin(3n)$ má om. č. součty

$b_n = \frac{1}{n} \longrightarrow 0$ klesající

Dirichlet $\boxed{\sum \sin(3n) \cdot \frac{1}{n} \quad k}$

$$\sum \sin(3n) \cdot \frac{n-1}{n(n+1)}$$

$$\sum \underbrace{\frac{\sin(3n)}{n}}_{a_n} \cdot \underbrace{\frac{n-1}{n+1}}_{b_n}$$

Celkem z Abela Zaubuk

Víme $\sum \frac{\sin 3n}{n}$ k ✓ om. ✓

$$0 \leq \frac{n-1}{n+1} \leq 1 \qquad \lim_{n\to\infty} \frac{n-1}{n+1} = 1$$

$b_n \nearrow$? ✓ $\qquad b_n \overset{?}{\leq} b_{n+1}$

$$\frac{n-1}{n+1} \overset{?}{\leq} \frac{(n+1)-1}{(n+1)+1}$$

$$(n-1)(n+2) \leq n(n+1)$$

$$n^2+n-2 \leq n^2+n \checkmark$$

$$\sum \sin^2 n$$

$$\sum \cos(n + n^2)$$

$$\sum |\cos n|$$

$$\sum \sin(n^3)$$

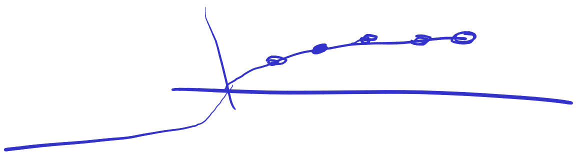
$$\boxed{\sum \frac{\sin n}{n}} \cdot \arctan n$$

$$\sum \frac{\sin n}{n}$$ om. č. s. Dirichlet

$$\frac{1}{n} \to \searrow$$

$0 \leq \arctan n \leq \pi/2$ omezená

rostoucí



Abel $\to$ $$\sum \frac{\sin n}{n} \cdot \arctan n$$