$$f(x) = \sin\frac{x}{2}$$

$$f'(x) = \cos\frac{x}{2} \cdot \frac{1}{2}$$

$$f''(x) = -\sin\frac{x}{2} \cdot \left(\frac{1}{2^2}\right)$$

$$f'''(x) = -\cos\frac{x}{2} \cdot \left(\frac{1}{2^3}\right)$$

$$f^{(n)}(x) = \frac{1}{2^n} \cdot (-1)^{\lfloor \frac{n}{2} \rfloor} \cdot \sin\frac{x}{2}$$ DLA n PARZYSTEGO

$$f^{(n)}(x) = \frac{1}{2^n} \cdot (-1)^{\lfloor \frac{n}{2} \rfloor} \cdot \cos\frac{x}{2}$$ DLA n NIEPARZYSTEGO

$$\max_{x\in[0,1]} |f(x) - L_n(x)| = \max_{x\in[0,1]} \left| \frac{f^{(n+1)}(\xi)}{(n+1)!} \cdot p_n(x) \right| \leq \max_{\in[0,1]} \left| \frac{p_n(x)}{2^{n+1}\cdot(n+1)!} \right| \leq \frac{1}{2^{n+1}\cdot(n+1)!}$$

$|p_{n+1}(x)| \leq 1$ NIE MA LEPSZEGO?

$$\frac{1}{2^{n+1}\cdot(n+1)!} \leq 10^{-15}$$ DLA $n=13$