Info

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Nowhere differentiable functions are dense in $\mathcal{C}[0,1]$

Bug

We shall use Weirstrass approximation theorem. Let F be the nowhere differentiable but continuous function on $[0,1]$ and let P_n be the polynomials approximating it

$$P_n \to F$$

then

$$F - P_n \to 0$$

approximate zero,. Then for arbitrary

$$Q_n \to f$$

we have

$$F - P_n + Q_n \to f$$

Now we just need to shoe $F - P_n + Q_n$ is nowhere differentiable, then we have a sequence of such functions converging to f uniformly!

Current note has 0 direct children and 0 total descendants.

- stem
  - subobjects of and functions on $\mathbb{R}^n, S^n, \mathbb{C}^n$ and its quotients $_\Gamma\backslash^{\mathbb{R}^n}, _\Gamma\backslash^{\mathbb{C}^n}$
    - dense
      - Nowhere differentiable functions are dense in $\mathcal{C}[0,1]$

And it has 2 siblings.

- stem
  - subobjects of and functions on $\mathbb{R}^n, S^n, \mathbb{C}^n$ and its quotients $_\Gamma\backslash^{\mathbb{R}^n}, _\Gamma\backslash^{\mathbb{C}^n}$
    - dense
      - Nowhere differentiable functions are dense in $\mathcal{C}[0,1]$
      - Basis of functions on $[0,1], S^1$