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ON THE LIMITS OF ŚWIĄTKOWSKI FUNCTIONS

A function $f\colon \mathbb{R} \to \mathbb{R}$ is called *Świątkowski function* if for all a and b with $f(a) < f(b)$, there is $y \in (f(a), f(b))$ and a continuity point x between a and b such that $f(x) = y$.

The main result presented during the talk is the characterization of the uniform limits of the sequences of Świątkowski functions.

We say that $f \in \bar{\mathcal{S}}$ if for all $\varepsilon > 0$ and for all a, b with $f(a) < f(b)$, there are $y \in (f(a) - \varepsilon, f(b) + \varepsilon)$ and x between a and b such that $f(x) = y$.

Theorem 1 ([1]). *Let $f\colon \mathbb{R} \to \mathbb{R}$. Then $f \in \bar{\mathcal{S}}$ if and only if f is the uniform limit of a sequence of Świątkowski functions.*

Moreover, there was shown that there exists everywhere discontinuous function f which is the pointwise limit of a sequence of Świątkowski functions.

References

[1] J.Wódka, *On the limits of Świątkowski functions*, submitted.

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