

UM 204: QUIZ 8
April 05, 2024

Duration. 15 minutes

Maximum score. 10 points

You may cite (without proof) the Riemann integrability of

- monotone functions;
 - continuous functions;
 - functions with only finitely many discontinuities.
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Problem. Let $\{a_n\}_{n \in \mathbb{N}} \subset (0, 1)$ be a decreasing sequence such that $\lim_{n \rightarrow \infty} a_n = 0$. Let $f : [0, 1] \rightarrow \mathbb{R}$ be a bounded function such that f is continuous on $[0, 1] \setminus \{a_n : n \in \mathbb{N}\}$. Using the ε -characterization of Riemann integrability, show that f is Riemann integrable on $[0, 1]$.