

**Problem** If  $A_1 \supset A_2 \supset \dots$  are nested measurable subsets of a measurable set  $E \subset \mathbb{R}^d$ ,  $A = \cap_{n=1}^{\infty} A_n$  and  $\phi$  is a nonnegative measurable function on  $E$  with  $\int_{A_1} \phi < \infty$ , then  $\int_A \phi = \lim_{n \rightarrow \infty} \int_{A_n} \phi$ .

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