Lecture 24

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1 Integrals on General Domains

Consider any set $S \in \mathbb{R}^n$ and $f : S \to \mathbb{R}$ being a bounded function. We want to define $\int_S f(x)$.

Definition 1.1 (Extensions)**.** Define the extension of f to a rectangle $Q \in \mathbb{R}^n \supseteq S$. Where

$$f_S(x) = \begin{cases} f(x) & \text{if } x \in S \\ 0 & \text{else} \end{cases}$$