Last time

1. Showed the Dominated Convergence Theorem (DCT): Let $\{f_n\}$ be a sequence of functions that converges pointwise. If there exists an non-negative function g such that
   (a) $|f_n| \leq g$ for all n, and
   (b) g is integrable,

   then
   $$\int_E \lim_n f_n \, d\mu = \lim_n \int_E f_n \, d\mu,$$
   for all $E \in \mathcal{A}$.
2. Talked about important corollaries of the convergence theorems: If $\{E_n\}$ is an increasing sequence of measurable sets with $E = \cup_n E_n$ and f is either non-negative or integrable, then
   $$\int_E f \, d\mu = \lim_n \int_{E_n} f \, d\mu$$
3. Looked at an example of how to compute with the Lebesgue integral: The function
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