MAT1000HF Fall 2017

Assignment 12

Practice problems for the material covered in the last week of lectures

Problem 1

Consider the measure space $(\mathbb{R}, \mathcal{B}_{\mathbb{R}}, m)$ where m is the Lebesgue measure and let $1 < p < \infty$. Find a sequence of functions in L^p which converge weakly but not in L^p.

Problem 2

Suppose X consists of two points $\{x, y\}$; define $\mu(\{x\}) = 1$, $\mu(\{y\}) = \mu(X) = \infty$. Is it true that $L^\infty(\mu) = (L^1(\mu))^*$?

Solve Folland Problems 20,21 Chapter 6