Math 185 - Real Analysis II - Spring 2024

Assessment 19
Due: 3:30 pm on April 30

The assessment should be compiled using LaTeX, with the pdf being uploaded by the above date and time. Recall all expectations regarding submitting your own authentic work provided in the syllabus. The file name should be:

Lastname-185-Assessment#.pdf

1. Let m be the Lebesgue measure as described in class. Let f and g be simple functions, and $c \in \mathbb{R}$.
   (a) Prove that $f + g$ is a simple function
   (b) Prove that cf is a simple function
   (c) Prove that $\int f + g dm = \int f dm + \int g dm$
   (d) Prove that $\int cf dm = c \int f dm$
   (e) Prove that if $f \leq g$ on $\mathbb{X}$, then $\int f dm \leq \int g dm$.