Mathematics 4790H – Analysis II: Topology and Measure TRENT UNIVERSITY, Winter 2025 Assignment #11 A Coincidence of Integrals

Due on Friday, 4 April.*

Please read the handouts A Precise Definition of the Defainite Integral, which gives Darboux's version of the Riemann integral, and A Darboux-Style Definition of the Lebesgue Integral for the definitions needed to answer the question below.

1. Suppose $f : [a, b] \to \mathbb{R}$ is defined, bounded, and Riemann-integrable on the finite interval $[a, b] \subset \mathbb{R}$. Show that f is also Lebesgue-integrable on [a, b] and that the two integrals have the same value. [10]



the mugging of a beautiful theory by a brutal gang of mathematicians

Another one from Abstruse Goose.

^{*} Please submit your solutions, preferably as a single pdf, via Blackboard's Assignments module. If that fails, please submit them to the instructor on paper or via email to sbilaniuk@trentu.ca as soon as you can.