MATH 104: WORKSHEET 14

1. Concepts

(1) Iterated integrals
(2) Double integrals in general regions

2. Discussions

Problem 2.1. Open Active Calculus Section 11.2 https://activecalculus.org/multi/S-11-2-Iterated-Integrals.html.
Do Activities 11.2.2, 11.2.3.

Problem 2.2. Consider the function $f : [0,1]^2 \to \mathbb{R}$ given by

$$f(x,y) = \begin{cases} y^{-2}\,, & 0 < x < y < 1 \\ -x^{-2}\,, & 0 < y < x < 1 \\ 0 & \text{otherwise}\,. \end{cases}$$

(1) Compute
   (a) $\int_0^1 \left[\int_0^1 f(x,y)\,dx\right] dy$
   (b) $\int_0^1 \left[\int_0^1 f(x,y)\,dy\right] dx$
(2) What do you see?

Problem 2.3. Open Active Calculus Section 11.3 https://activecalculus.org/multi/S-11-3-Double-Integrals-General.html.
Do Activities 11.3.1-11.3.4.

Date: April 15, 2024.