MATH-244
Midterm 01

Created by Pierre-O. Parisé
09/11/2023, Fall 2023

University of Hawai'i

Last name: _____

First name: _____

Question:	1	2	3	4	5	Total
Points:	10	10	10	10	10	50
Score:						

Instructions:

- Make sure to write your complete name on your copy.
- You must answer all 5 questions below and write your answers directly on the questionnaire.
- You have 50 minutes to complete the exam.
- When you are done (or at the end of the 50min period), return your copy.
- Any electronic devices are not aloud during the exam.
- You can use a calculator.
- **Turn off your cellphones during the exam**.
- Lecture notes and the textbook are not allowed during the exam.
- You must show ALL your work to have full credit.
- Draw a square around your final answer.

Your Signature: _____

May the Force be with you!
Pierre Parisé

Question 1 **(10 pts)**

Estimate the volume of the solid that lies below the surface $z = xy$ and above the rectangle

$$R = [0, 6] \times [0, 4].$$

Use a Riemann sum with $m = 3$ and $n = 2$, and take the sample point to be the upper right corner of each sub-rectangle.

Question 2 **(10 pts)**

Evaluate the following iterated integral:

$$\int_0^1 \int_1^2 (x + e^{-y})\, dxdy.$$

Question 3 **(10 pts)**

Evaluate the volume of the solid that lies under the plane $4x + 6y - 2z + 15 = 0$ and above the rectangle $R = [-1, 2] \times [-1, 1]$.

Question 4 **(10 pts)**

Setup the integral by taking the following order: $dA = dxdy$. **Do not evaluate the integral.**

$$\iint_D y\,dA, \quad D \text{ is bounded by } y = x - 2,\ x = y^2.$$

Question 5 **(10 pts)**

Evaluate the following integral.

$$\int_0^{\sqrt{\pi}} \int_y^{\sqrt{\pi}} \sin(x^2)\, dxdy.$$