

**WRITE YOUR NAME:**

MAC 2313 B51 Spring 2024

Written homework #8

Due Tuesday March 12th, in Canvas

**Question 1.** Find all local maxima, local minima, and saddle points of the function.

$$f(x, y) = x^3 + y^3 + 3x^2 - 3y^2 - 8$$

**Question 2.** Evaluate the integral

$$\iint_R xy \sin x^2 dA$$

where  $R$  is the region defined by  $0 \leq x \leq \sqrt{\pi/2}$  and  $0 \leq y \leq 1$ .

**Question 3.** Evaluate the integral.

$$\int_0^{\ln 2} \int_{e^y}^2 \frac{y}{x} dx dy$$