

MA 261 QUIZ 6

FEBRUARY 27, 2019

If you do not know how to do any one of these problems, circle “**(E) I don’t know**” as your answer choice. You will receive **two points** for doing that. **Each problem** is worth **five points**. You get **two points** for writing your **full name** and **three points** for writing your **section number**.

Problem 6.1. Find the maximum and minimum of $f(x, y, z) = xyz$ subject to the constraint $x + y + z = 1$ for $x, y, z \geq 0$.

(*Hint:* Use Lagrange multipliers.)

- (A) maximum $1/27$, minimum 0
- (B) maximum 0 , minimum 0
- (C) maximum $1/27$, minimum $-1/27$
- (D) maximum $1/3$, minimum 0
- (E) I don’t know how to do this

Problem 6.2. Find the absolute maximum of $f(x, y) = 2x^2 - y^2 + 6y$ on $x^2 + y^2 \leq 16$.

- (A) 8
- (B) 9
- (C) 35
- (D) 40
- (E) I don’t know how to do this

Problem 6.3. Find the value of the iterated integral

$$\iint_R 2 - x \, dA, \quad R = \{(x, y) : 0 \leq x \leq 2, 0 \leq y \leq 3\}.$$

- (A) 6
- (B) 8
- (C) 10
- (D) 12
- (E) I don’t know how to do this