

King Saud University

Department of Mathematics

2nd Semester 1445 H

MATH 201 (Differential and Integral Calculus)

Assignment

To be submitted on or before 14-10-1445 H

23-04-2024

Student Name	Student ID	

Question Number	I	II	Total
Mark			

Instructions

- Use any trusted source of information with proper citation and no plagiarism
- · Work on this assignment as groups of two

[I] Let
$$f(x,y) = \begin{cases} \frac{y(x+1)^2 + y^2 \sin(\pi x)}{(x+1)^2 + y^2}, & (x,y) \neq (-1,0) \\ 0, & (x,y) = (-1,0) \end{cases}$$

- a. Show that f is continuous at the point (-1,0)
- **b.** Find $f_y(-1, 0)$
- c. Find $f_{\chi}(0,1)$

[II] Find the extrema and saddle points of $f(x, y) = x^2 + xy$ on the region bounded by the graphs $y = x^2$ and y = 4

Good Luck [☺]