King Saud University | MATH 201 (Differential and Integral Calculus)

Department of Mathematics | Assignment

1st Semester 1445 H | To be submitted on or before 22-04-1445 H

6-11-2023

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 three

[I] Let $w = f(u, v)$ where $u = x + y$ and $v = xy$. Show that

$$\frac{\partial^2 w}{\partial y \partial x} = \frac{\partial^2 w}{\partial u^2} + u\frac{\partial^2 w}{\partial u \partial v} + v\frac{\partial^2 w}{\partial v^2} + \frac{\partial w}{\partial v}$$

[II] Find the extrema and saddle points of $f(x, y) = y^2 + xy$ on the region bounded by the graphs $x = y^2$ and $x = 9$

Good Luck ☺