

Show all work clearly and in order, and circle your final answers. Justify your answers.

PROBLEM ONE Find the first order partial-derivatives of the following function:

$$f(x, y) = \frac{e^y}{x^2 + \cos(x^3)} + \ln(\sin(xy))$$

PROBLEM TWO For the function $f(x, y, z) = e^{x^2y^3z^4}$ find $f_{xz}(x, y, z)$.