Show your work fully for all questions. Quiz has **front** and **back** sides.

Problem 1:   Find the first partial derivatives of $f(x, y) = \frac{x}{(x+y)^2}$. Is it differentiable at the point $(0, 1)$? Why or why not?

Problem 2:   Give the linearization $L(x, y)$ of the function $f(x, y) = \sqrt{x + e^{4u}}$ at the point $(3, 0)$.

Problem 3: Find the equation for the tangent plane to the surface $z = y \sin(x + 2y)$ at the point $(-2, 1, 0)$.