

Name:
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MAC 2313.3122
Cyr

Quiz 6

You must show all work to receive full credit!!

Problem 1. (6 pts) Let $f(x, y) = x^2y^{-1/2} + y^{-3}$.

(a) Find an equation of the tangent plane to $f(x, y)$ at the point $(2, 1)$.

(b) Calculate the directional derivative of $f(x, y)$ in the direction of $\mathbf{v} = \langle 3, 4 \rangle$ at the point $(2, 1)$.

Problem 2. (4 pts) Let $g(x, y) = xe^y$, $x = s^3$, $y = sr^2$. Use the chain rule to evaluate the partial derivative $\frac{\partial g}{\partial s}$ at the point $(r, s) = (2, 2)$.