

Name:
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MAC 2313.9256
Cyr

Quiz 5

You must show all work to receive full credit!!

Problem 1. (6 pts) Let $f(x, y) = \frac{xy}{x - y}$. Evaluate $\left. \frac{\partial f}{\partial y} \right|_{(2,3)}$ and $\left. \frac{\partial^2 f}{\partial x \partial y} \right|_{(4,2)}$.

Problem 2. (4 pts) Let $g(x, y) = \frac{x^2 y^2}{x^2 + y^2}$.

(a) Evaluate $\lim_{(x,y) \rightarrow (0,0)} g(x, y)$ along the x -axis.

(b) Evaluate $\lim_{(x,y) \rightarrow (0,0)} g(x, y)$ along the line $y = x$.

(c) Can you conclude that $\lim_{(x,y) \rightarrow (0,0)} g(x, y)$ exists? Explain why or why not.