

Math 3113 - Multivariable Calculus

Quiz #13 - 2006.04.12

Name: _____

For the following problems, let $\vec{v} = \langle 2, -2 \rangle$, $P = (-1, 1)$ and $f(x, y) = e^{x+y}(x^2 - y^2)$.

1. Find a unit vector \vec{u} in the direction of \vec{v} .
2. Compute ∇f .
3. Find the directional derivative of $f(x, y)$ at the point P in the direction of the vector \vec{v} .
4. In what direction does the directional derivative obtain its maximum at the point P ?
5. What is the value of the directional derivative in the direction found in problem 4 at point P .