Math 210 Quiz 5   /   Friday, October 10, 2008   /   David Dumas

Consider the function $f(x, y, z) = x^2 y + z^2 + y \sin(z)$.

(1) Compute the gradient $\nabla f_{(x,y,z)}$.

(2) Compute the directional derivative $D_{\mathbf{u}} f(1, 3, 0)$ where $\mathbf{u}$ is a unit vector with the same direction as $\mathbf{v} = \langle 2, -2, 1 \rangle$.