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Math 210 Quiz 8 / Monday, November 10, 2008 / David Dumas

1. Let $f(x, y, z) = 10x^2 + e^{3y-z}$. Find a nonzero vector $\mathbf{v}$ such that the directional derivative of f at $(2, 0, 0)$ in the direction of $\mathbf{v}$ is equal to zero, i.e. $D_{\mathbf{v}} f(2, 0, 0) = 0$.

2. Let z be a function of x and y satisfying the equation $xy + yz + zx = 11$. Calculate the partial derivatives $\dfrac{\partial z}{\partial x}$ and $\dfrac{\partial z}{\partial y}$ at the point $(x, y, z) = (1, 2, 3)$.