QUIZ #2: MATH 301-06 Feb 19, 2018

NAME:.....ID:.....

Ex1#1: (a) Find the directional derivative of $f(x, y, z) = e^{-x} z \tan^{-1} y$ at the point P$(0, 1, 2)$ in the direction of the vector $v = 2\mathbf{i} + \mathbf{j} - \mathbf{k}$

(b) Find the direction in which f decreases most rapidly at the point Q$(1, 1, 0)$ What is the value of the maximum rate there.

Ex#2: (a) Show that the vector field $F = ye^{x+z}\mathbf{i} + e^{x+z}\mathbf{j} + ye^{x+z}\mathbf{k}$ is conservative.

(b) Find a potential ϕ for F and deduce the value of $I = \int_{(0,1,1)}^{(1,1,0)} F \cdot dr$