Math 3298 Worksheet 6: Linearization and implicit partial differentiation

Group members (2 to 4): _____

(1) Compute $\frac{\partial f}{\partial x}$, $\frac{\partial f}{\partial y}$, $\frac{\partial^2 f}{\partial x^2}$, $\frac{\partial^2 f}{\partial x \partial y}$, $\frac{\partial^2 f}{\partial y \partial x}$, and $\frac{\partial^2 f}{\partial y^2}$ for $f(x, y) = x\cos(2yx) + y$.

(2) The surface $y = x\tan(z)$ can be considered as the graph of a function $z = f(x, y)$ near the point $(1, 1, \pi/4)$. Compute the linearization $L(x, y)$ of $f(x, y)$ for this point.