Math 21C
Kouba
The Chain Rule and Secord-Order Partial Derivatives

1.) Use the Chain Rule to find and simplify (as much as possible) the following second-order partial derivatives.

a.) $\dfrac{d^2z}{dt^2}$, where $z = f(x, y)$, $x = e^{2t}$, and $y = \sin t$.

b.) $\dfrac{\partial^2 z}{\partial t^2}$ and $\dfrac{\partial^2 z}{\partial r^2}$, where $z = f(x, y)$, $x = rt^2$, and $y = r^3 - t$.