Quiz 4 Calculus III Fall 2015

Names:.....
Solve the following problems. Each problem is worth 5 points.

Q1. Find the position vector $\mathbf{r}(t)$ of a particle with initial position $\mathbf{r}(0) = \mathbf{i} + \mathbf{j}$, initial velocity $\mathbf{v}(0) = \mathbf{k}$, and acceleration: $\mathbf{a}(t) = t\mathbf{i} + e^t\mathbf{j} + e^{-t}\mathbf{k}\,, \quad t \geq 0.$

Q2. Find the domain and sketch the graph of the function: $f(x, y) = \sqrt{4 - 4x^2 - y^2}$.