Take-home Quiz 2

Math 32A

**Note: Due Feb 15 Saturday at 11:59pm (I do not want to make it due on Valentine's day.) There are three questions in total.**

1. $\mathbf{r}(t) = \langle t, \cos t, \sin t \rangle$, find $a_{\mathbf{T}}$ and $a_{\mathbf{N}}$ as a function of $t$.

2. What is the type of the quadratic surface $x^2 + (\frac{y}{4})^2 + z^2 = 1$? Derive and describe the trace obtained by intersecting it with the plane $y = 3$. Sketching is not required.

3. Sketch a contour map of $f(x, y) = 2x + y$ with the contour interval $m = 2$.