

Math 210 (Lesieutre)
Quiz 1
January 25, 2017

Name: _____

Problem 1. Let $\mathbf{r}(t) = \langle t \sin t, \cos t, 1 \rangle$. Find the tangent vector to the parametrized curve at $t = \pi$.

The tangent vector at $t = \pi$ is given by the derivative $\mathbf{r}'(\pi)$. We have

$$\mathbf{r}'(t) = \langle t \cos t + \sin t, -\sin t, 0 \rangle$$

Plugging in $t = \pi$, we get $\mathbf{r}'(\pi) = \langle -\pi, 0, 0 \rangle$.

(Some of you worked out the tangent line: this is a line through $\mathbf{r}(\pi)$, in the direction $\mathbf{r}'(\pi)$; there's one of these on the written homework, but it's more than I needed.)