

Quiz #5; Wed, 2/24/2016

Math 53 with Prof. Stankova

Section 110; MWF12-1

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Student Name: _____

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

Solution. $\mathbf{r}'(t) = \langle \cos t, -\sin t, -1 \rangle$, so plugging in $t = \pi$ we get $\mathbf{r}'(\pi) = \langle -1, 0, -1 \rangle$, so that dividing by its magnitude we get $\langle -\frac{1}{\sqrt{2}}, 0, -\frac{1}{\sqrt{2}} \rangle$.