Mathematics 21a Fall 2006
In class problems. Oct. 5

A curve in $\mathbb{R}^3$ is given parametrically by

$$\vec{r}(t) = \langle \sin 3t, -\cos 3t, t^{\frac{3}{2}} \rangle, \quad t \in [\frac{\pi}{2}, \pi].$$

- Find the equation of the tangent line to the curve at $t = \frac{2\pi}{3}$.
- Calculate the arc length of the curve.