Math 225: Calculus III   Name:_____

Quiz 3   *Feb. 4/6, 1997*   Section:_____

1. A particle's position is given by $\mathring{r}(t) = \sin(\pi t)\imath + e^{1-t}\jmath + (t+1)^2$. Find the particle's speed when it reaches the point $(0, 1, 4)$.

2. Find a (non-zero) vector perpendicular to the curve defined by $\mathring{r}(t) = t\imath + t\jmath - t^2$ at the point $(2, 2, -4)$.