

Show all work. 5 points each.

1. Find the curvature of $\mathbf{r}(t) = \langle t^2, 0, t \rangle$.

2. Find the velocity acceleration and speed of the particle with position function $\mathbf{r}(t) = \langle t^2 + 1, t^3, t^2 - 1 \rangle$.