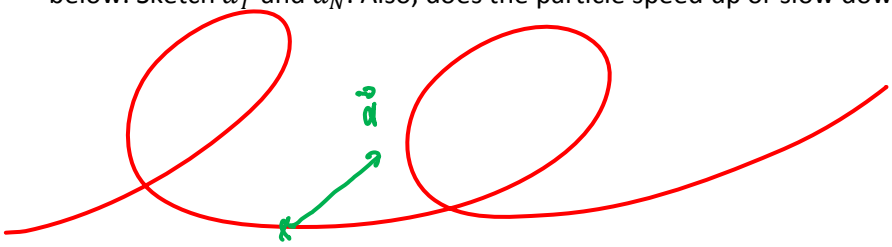
Name: _____

Math 2411/2511 Quiz

1. If $\vec{r}(t) =< \cos(2t), \sin(2t), 2t >$. Find the velocity, speed, acceleration, tangential and normal components of the acceleration at $t = \pi$

2. Suppose the acceleration vector at time t_0 of a particle moving along a curve $\vec{r}(t)$ is as shown below. Sketch a_T and a_N. Also, does the particle speed up or slow down at that time?



3. A girl kicks a soccer ball from a cliff 10 m high at a speed of 15 m/s going horizontally. At what distance does the ball hit the ground?