MthU242 Calculus II
Northeastern University Professor Gilmore
Quiz #10 Apr. 3, 2008
20 Minutes Name: _____.

Show All Your Work

1. The curves r(t) = $\langle t,\ t^2,\ t^3 \rangle$ and u(t) = $\langle \sin(t),\ \sin(2t),\ t \rangle$ intersect at the origin in space. Find the angle which they make with each other, the angle of intersection, there. Give your answer to three decimal place accuracy.

2. Reparametrize the curve r(t) = (6t, 7 + 2t, 3t – 5) with respect to arc length measured in the direction of increasing t, starting at t = 0.

3. a. Find the unit tangent and unit normal vectors for the curve
r(t) = $\langle 2\sin(t),\ 5t,\ 2\cos(t) \rangle$ for any value of t.