Name:

Grade:

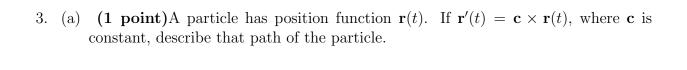
/8

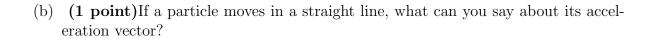
Math 1321 Week 6 Lab Worksheet Due Thursday 10/02

- 1. (2 points) Cylindrical & Spherical Coordinates:
 - (a) Write the equation in cylindrical coordinates: $x^2 y^2 + z^2 = 9$.

(b) Write the equation in spherical coordinates: $x^2z + y^2z = 2xy$.

2.	(3 points) Arc Length & Curvature: The DNA molecule has the shape of a double helix. The radius of each helix is about 10 angstroms $(1\mathring{A} = 10^{-8}cm)$. Each helix rises about $34\ \mathring{A}$ during each complete turn, and there are about 2.9×10^8 complete turns.
	(a) Estimate the length of each helix.
	(b) What is the definition of curvature?
	(c) Estimate the curvature of each helix.
	(c) Estimate the curvature of each neux.





(c) (1 point) If a particle moves with constant speed along a curve, what can you say about its acceleration vector?