

Math 474 HW #1

Due 2:00 PM Friday, Aug. 30

1. A circular disk of radius 1 in the xy -plane rolls without slipping along the x -axis. A point on the rim of the disk traces out a curve called a *cycloid*.
 - (a) Find a parametrization $\alpha(t)$ for the cycloid.
 - (b) What is the length of the portion of the cycloid corresponding to one complete revolution of the disk?
2. (Shifrin Problem 1.1.1) Parametrize the unit circle (except the point $(-1, 0)$) in terms of the variable t shown below.

