

QUIZ IS DUE AT THE BEGINNING OF SECTION ON THURSDAY, MAY 31
This quiz is open notes and book, but NO COLLABORATION.

Math 6A

Quiz 4

Name: _____

Section Time: _____

Complete the following problems, making sure to SHOW ALL WORK. If you're stuck on something, CLEARLY EXPLAINING what you do know will get you partial credit!

1. Consider the curve parametrized by

$$\vec{r}(\theta) = \langle \cos(\theta), \sin(\theta), \theta \rangle, \quad \theta \in [0, 2\pi].$$

- (a) Compute the arc length of this curve.
- (b) Reparametrize the curve with respect to arclength. Be sure to give the bounds for the new parameter as well.
- (c) Calculate the integral of the function $f(x, y, z) = xyz$ along this curve.
- (d) Calculate the integral of the vector field ∇f along this curve, with f being the function given in part (c).