Math 2374, Lecture 10: Quiz 6
27 October 2011

Name: __________________________ Section #: __________

For all questions, show your work. State formulas, if they are needed. Use the back of this sheet if you need more space.

1. Use the same path $C$ for parts (a) and (b). $C$ is defined as a circle, centered at the origin, with radius 3.
   (a) Let $f(x, y) = y^3$. Find the path integral $\int_C f\, ds$.

   (b) Let $\overrightarrow{F}(x, y) = \langle \cos(x), y^3 \rangle$. Find the line integral $\int_C \overrightarrow{F} \cdot d\overrightarrow{s}$.

2. Find the volume between the two planes $z = x + y$ and $z = 5$, over the shape bounded by $y - x = 0$, $y = 2$, $x = 0$. You may use either a triple or a double integral to set up this problem.