

Name: _____

- No electronic devices are allowed. You must show your work to obtain credit.
 - You may use the back if necessary. Please indicate clearly if you do so.
1. (5 points) Let C be the triangle with vertices $(0, 0)$, $(1, 0)$, and $(1, 1)$. Verify Green's theorem for $\mathbf{F} = \langle -1, xy \rangle$ by computing $\oint_C \mathbf{F} \bullet d\mathbf{r}$ both directly and using the theorem. (Fall 2014, question 8)

2. (5 points) Determine whether or not the vector field is conservative. If it is conservative, find a function f such that $\mathbf{F} = \nabla f$:

$$\mathbf{F}(x, y, z) = \langle 1, \sin z, y \cos z \rangle.$$