

Math 230

Quiz 5

Name: _____

Section: 1 & 2

Fall 2006

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All work must be shown to receive full credit!

1. (3 points) Is the vector field \mathbf{F} conservative?

$$\mathbf{F}(x, y) = \begin{bmatrix} \cos(xy) - xy \sin(xy) \\ -x^2 \sin(xy) \end{bmatrix}$$

(3 points) Compute the line integral

$$\int_C \mathbf{F} \cdot d\mathbf{r}, \quad \text{where } C : x^2 + y^2 = 4, \quad y \geq 0.$$

Assume that the curve C goes from $(2, 0)$ to $(-2, 0)$.

2. (4 points) Compute the line integral

$$\int_C xy \, ds$$

where C is a line segment from $(0, 0)$ to $(1, 1)$.