

Math 2374 - Quiz 8

Name: _____

Section: _____

Let S be the surface of the cylinder (without lids) given by

$$x^2 + y^2 = 1$$

between $z = 0$ and $z = 1$. We give this surface the *outer pointing* unit normal as orientation.

1. Draw a picture of the cylinder and draw the arrows on the boundaries corresponding to the orientation induced by S .

2. Use Stoke's theorem to compute

$$\iint_S \operatorname{curl} \left(z e^{x^2+y^2} (y\vec{i} - x\vec{j} + \cos(x^2 - y^2)\vec{k}) \right) \cdot dS.$$