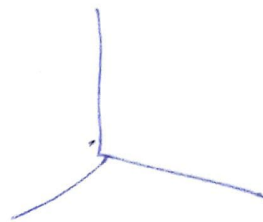


$$\hat{n} = \hat{k}$$

$$\nabla \times F = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ \frac{\partial}{\partial x} & \frac{\partial}{\partial y} & \frac{\partial}{\partial z} \\ y & -x & e^{xz} \end{vmatrix}$$



$$= \hat{i}(0-0) - \hat{j}(ze^{xz}-0) + \hat{k}(-1-1) = -ze^{xz}\hat{j} - 2\hat{k}$$

$$\iint_S (\nabla \times F) \cdot \hat{n} \, dS = \iint_S (\nabla \times F) \cdot \hat{k} \, dx \, dy \quad [S: x^2 + y^2 = 1]$$

$$= -2 \times \iint dx \, dy$$

$$\Rightarrow -2 \times \pi \times (1)^2 = -2\pi = \boxed{-6.283}$$