Math 53 DIS 108/109
Quiz: May 1, 2015 Name: _____

Show your work fully for all questions. Quiz has **front** and **back** sides.

Problem 1: Evaluate the integral $\iint_S (\nabla \times F) \cdot \mathbf{dS}$ where $F(x, y, z) = (2y\cos(z), e^x \sin(z), xe^y)$ and S is the hemisphere $x^2 + y^2 + z^2 = 9$, $z \geq 0$, oriented upward.

Problem 2: Evaluate the integral $\iint_S F \cdot \mathbf{dS}$ where $F(x, y, z) = (x^2, -y, z)$ and S is the surface of the region $y^2 + z^2 \leq 9$, $0 \leq x \leq 2$

Problem 3: Evaluate the surface integral $\iint_S xzdS$ where S is the boundary of the region enclosed by the cylinder $y^2 + z^2 = 9$, and the planes $x = 0$ and $x + y = 5$