MATH 261 Quiz 13 Name: .
Section:

Show all work. 10points.

1) Let $\mathbf{F}(x, y, z) = \langle xy,\, 2z,\, yz \rangle$. Set up the integral for evaluating $\iint_S \mathbf{F} \cdot d\mathbf{S}$ where S is the part of the paraboloid $z = 4 - x^2 - y^2$ that lies above the square $0 \leq x \leq 1$ and $0 \leq y \leq 1$.

2) Let $\mathbf{F}(x, y, z) = \langle z^2,\, xyz,\, z \rangle$. Use Stokes Theorem to set up the integral $\int_C \mathbf{F} \cdot d\mathbf{r}$ where C is the intersection of the square cylinder $0 \leq x \leq 1$ and $0 \leq y \leq 1$ and the paraboloid $z = 4 - x^2 - y^2$.