"QUIZ" for Lecture 22

NAME: (print!) Tayed Raza **Section:** 6

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q22FirstLast.pdf) ASAP BUT NO LATER THAN Nov. 16, 8:00pm

Evaluate the surface integral $\int\int_S \mathbf{F} \cdot d\mathbf{S}$ for the given vector field $\mathbf{F}$ and oriented surface S.

$$\mathbf{F}(x, y, z) = \langle xy\,,\, yz\,,\, zx \rangle \quad ,$$

and S is the part of the paraboloid $z = 1 - x^2 - y^2$ that lies above the square $0 \le x \le 1\,,\ 0 \le y \le 1$ and has upward orientation.

$\langle -2x, -2y, 0 \rangle$

$$\int_0^1 (-2x-2x)\sqrt{1+4x^2+4y^2}$$

$$\sqrt{5}\int_0^1 -4x$$

$$-4\sqrt{5}$$