Name ____________________________

(circle your TA discussion section)

▷ DD1, TR 9:00-9:50, Argen West
▷ DD3, TR 4:00-4:50, Bo Gwang Jeon
▷ DD5, TR 2:00-2:50, Bo Gwang Jeon
▷ DD7, TR 8:00-8:50, Daniel Hockensmith

▷ DD2, TR 10:00-10:50, Daniel Hockensmith
▷ DD4, TR 1:00-1:50, Argen West
▷ DD6, TR 4:00-4:50, Euijin Hong
▷ DD8, TR 11:00-11:50, Euijin Hong

• You may work with other students in this class. However each student should write up solutions separately and independently – nobody should copy someone else’s work.

• You may use your notes or the textbook.

• Computers are not allowed on any problem. You may use a calculator only for basic arithmetic.

• The quiz should be submitted to Mr. Murphy at the beginning of lecture on Wednesday, May 2nd. Late quizzes will not be accepted.

• There is a higher expectation for the quality of your work on a take-home quiz. Everything should be written logically and legibly with sufficient work to justify each answer. Blank copies of the quiz are available on the course home page.

• Be sure that the pages are nicely stapled – do not just fold the corners.

• Note to TAs and Tutors – you should not help students with these specific problems or go over solutions until after 2pm Wednesday.
1. (3 points) Suppose \( \vec{F} = \langle e^{xy}, e^{xz}, zx^2 \rangle \) and \( S \) is the half of the ellipsoid \( 4x^2 + y^2 + 4z^2 = 4 \) that lies to the right of the \( xz \)-plane, oriented in the direction of the positive \( y \)-axis. Use Stokes’ Theorem to evaluate \( \int \int_S \text{curl} \vec{F} \cdot d\vec{S} \).
2. (3 points) Suppose \( \vec{F} = \langle 1, x + yz, xy - \sqrt{z} \rangle \) and \( C \) is the boundary of the part of the plane \( 3x + 2y + z = 1 \) in the first octant. Given that \( C \) is oriented counterclockwise as viewed from above, use Stokes' Theorem to evaluate \( \int_C \vec{F} \cdot d\vec{r} \).
3. (4 points) Suppose $\vec{F} = \langle x^3 + y^3, y^3 + z^3, z^3 + x^3 \rangle$ and $S$ is the sphere of radius 2 centered at the origin. Use the Divergence Theorem to calculate the flux of $\vec{F}$ across $S$. 