Name:
Student ID #:
Section #:

Question 1. Use Stokes’ theorem to evaluate the line integral
\[\oint_C -y^2 \, dx + x \, dy + z^2 \, dz\]
where \(C\) is the curve formed by intersection of the cylinder \(x^2+y^2 = 1\) with the plane \(y+z = 2\).
**Question 2.** Use divergence theorem to evaluate

\[ \iint_S (x^2z^3 \mathbf{i} + 2xyz^3 \mathbf{j} + xz^4 \mathbf{k}) \, dS \]

where \( S \) is the surface of the box defined by \(-1 \leq x \leq 1, -2 \leq y \leq 2 \) and \(-3 \leq z \leq 3\).