1. Problems 5.8, 5.9 and 5.11 on page 98.

2. Verify the Stokes theorem by calculating both the surface integral and the closed loop integral for vector field $\mathbf{u}=(0, 2x, z)$, with surface $S$ given by $z = 2 - 2x - y$, enclosed in the $1^{\text{st}}$ octant. Note that the line integral breaks down into three separate pieces.

3. Verify the Stokes theorem (Green’s theorem) for a ring enclosed between two concentric circles of radii 1 and 2, with the field $\mathbf{u}=(y, x^2, z)$: