Mathematics V1208y
Honors Mathematics B

Assignment #13

Due Never

In problems employing Stokes's or Gauss's theorems, you may assume the relevant regions are of graph type.

Apostol §12.15 (pp. 447–8) 1a, 3, 5, 8.

Apostol §12.17 (pp. 452–3) 3, 10.

Apostol §12.21 (pp. 462–5) 1, 4, 5, 6, 7, 8, 9, 10, 11, 12. Note on 4–9: Apostol denotes the integrand in a surface integral by $F \cdot \mathbf{n}\, dS$, while I write $F \cdot d\mathbf{r}^2$. So to translate these statements into my notation, substitute $\nabla f \cdot d\mathbf{r}^2$ for $\partial f/\partial n\, dS$ everywhere.

As hinted in class, write down an analogue of Gauss's theorem for a 2-dimensional region and show that it can be quickly deduced from Green's theorem.