MAT 141
Problem Set #13

due in recitation on December 9 or 10, 2004

1. Apostol, section 4.9, # 5, 16
2. Apostol, section 4.12 # 1–12, 22
3. Apostol, section 4.15 # 4
4. Assume that $f_1, f_2, \cdots f_n$ are differentiable functions. Prove that their product $f_1 f_2 f_3 \cdots f_n$ is differentiable and that

$$(f_1 f_2 f_3 \cdots f_n)' = \sum_{k=1}^{n} f_1 f_2 \cdots f_{k-1} f_k' f_{k+1} \cdots f_n$$