MAT 142
Problem Set #9

due in class on March 31, 2005

1. Apostol, section 10.14 # 5–9, 15–17
2. Apostol, section 10.16 # 6–9
3. Apostol, section 10.20 # 10–12
4. On this week's quiz, you proved that if $\sum_{k=0}^{\infty} a_k$ and $\sum_{k=0}^{\infty} b_k$ are two convergent series of non-negative numbers, then $\sum_{k=0}^{\infty} a_k b_k$ also converges.
   (a) Show that the statement is *false* if you remove the hypothesis that $a_k, b_k \geq 0$.
   (b) What happens if you assume that only one of the series is non-negative?

Note: There are a lot of problems in sections 10.14, 10.16, and 10.20. You should do as many of them as you can, until you understand the material.