ASSIGNMENT #9

(*All Problems Due* **Monday 11/26/01**.)

Section 6.2, # 5a.

Section 6.2, # 7a.

Section 6.2, # 8ab.

Section 6.3, # 9.

Section 6.3, # 11.

Section 6.3, # 12.

Additional XII. Prove that if $mE < \infty$ then

$$1 \le q \le p \le \infty \qquad \Longrightarrow \qquad L^p(E) \subset L^q(E).$$

(That is, prove that if $\int |f|^p < \infty$ then $\int |f|^q < \infty$—at least in the $p < \infty$ case.)

Additional XIII. Prove that

$$1 \le q \le p \le \infty \qquad \Longrightarrow \qquad l^q \subset l^p.$$

(Yes, the direction is reversed from the previous problem. See 6.2 #7a for the definition of l^p.)

[Hint: *Do 6.2 #7a, Additional XIII, 6.3 #12 in that order—I think doing 6.3 #12 will be easier after you have "practiced" with these sequences.*]