Statistics 522, Problem Set 1

Wellner; 1/16/2008

Reading: Shorack, PfS, Chapter 8, Sections 4-6, pages 172 - 187;

Due: Wednesday, January 23, 2008.

1. PfS, exercise 3.2.3, page 42: Consider a measure space $(\Omega, \mathcal{A}, \mu)$. Let $\mu_0 \equiv \mu|_{\mathcal{A}_0}$ for a sub $\sigma-$field $\mathcal{A}_0$ of $\mathcal{A}$. Starting with indicator functions, show that $\int X d\mu = \int X d\mu_0$ for any $\mathcal{A}_0-$measurable function X.

2. Exercise 8.4.1, page 173, PfS.

3. Exercise 8.4.2, page 175, PfS.

4. Exercise 8.4.4, page 180, PfS. (In proving the statement (26), page 177, it is to be understood that $E(XY)$ exists; alternatively, show that the statement holds for all *bounded* $\mathcal{D}-$measurable random variables X.)

5. Exercise 8.4.5, page 180, PfS.