Homework #6 (due November 13, 2012)

1. Let $(x_1, \ldots, x_n)$ be a sample from uniform distribution $U(a\theta,\ b\theta)$ with $a > 0$, $b > 0$ given, $a < b$ and $\theta > 0$ as a parameter.
Develop the MLE of θ, calculate its bias and show its consistency.

2. Let $(x_1, \ldots, x_n)$ be a sample from a population with pdf

$$f(x;\theta) = (\theta + 1)x^{\theta},\ 0 < x < 1$$

with $\theta > -1$ as a parameter.
Find the asymptotic as $n \to \infty$ distribution of the MM estimator of θ (i) by straightforward analysis of the estimator and (ii) by using the general result proved in class.

3. Section 4.6: Problems 127, 128.