Econ 7710
Assignment 6

Due November 10th

1. You have n i.i.d. draws from the uniform distribution on $[0, \theta]$.
   (a) Construct the maximum likelihood estimator for parameter θ
   (b) Derive the exact distribution of your estimator and compute its "small sample" bias, i.e. $E[\widehat{\theta}_{MLE}] - \theta$
   (c) Find the variance of your estimator, find the rate r_n (as a function of n) at which the standard deviation of your estimator converges to 0 and show that your estimator is consistent
   (d) Find the asymptotic distribution of your estimator, i.e. the distribution limit of the sequence of random variables $r_n(\widehat{\theta}_{MLE} - \theta)$