Assignment 4

PM522b Introduction to the Theory of Statistics Part 2

Due: February 13, 2018

1. Explain why maximzing the likelihood function as a function of θ is equivalent to maximizing the log liklihood function.
2. Given a random sample from a uniform distribution, find the maximum likelihood estimator for θ when a) $0 \leq x \leq \theta$; b) when $0 < x < \theta$; c) when $\theta \leq x \leq \theta + 1$.
3. Given a random sample from a Bernoulli(θ) distribution, find the MLE of $\eta = \sqrt{\theta(1-\theta)}$. What quantity does η represent for the Bernoulli(θ) distribution?
4. CB 7.16 d) and e) only (this is about geometric and harmonic means).