Worksheet 10
Homework of 2012-04-24
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1. Let $X \sim Beta(x, \alpha, \beta)$. Let $\{X_i\}_{i=1}^{n}$ be a random sample (i. i. d.) of values all from $Beta(x, \alpha, \beta)$. Let $\beta = 1$. Find an estimator for the α parameter, $\widehat{\alpha}$, by the method of moments.

2. Let $X \sim NegBin(x, r = \psi, p = \theta)$. Let $\{X_i\}_{i=1}^{n}$ be a random sample (i. i. d.) of values all from $NegBin(x, r = \psi, p = \theta)$. Find estimators for the ψ and the θ parameters, $\widehat{\psi}$ and a $\widehat{\theta}$, by the method of moments.

3. Let $X \sim Pois(x, \lambda)$. Let $\{X_i\}_{i=1}^{n}$ be a random sample (i. i. d.) of values all from $Pois(x, \lambda)$. Find an estimator for the λ parameter, $\widehat{\lambda}$, by the method of maximum likelihood.

4. Let $X \sim Exp(x, \theta)$. Let $\{X_i\}_{i=1}^{n}$ be a random sample (i. i. d.) of values all from $Exp(x, \theta)$. Find an estimator for the θ parameter, $\widehat{\theta}$, by the method of maximum likelihood.

5. Let $X \sim Ray(x, \alpha)$. Let $\{X_i\}_{i=1}^{n}$ be a random sample (i. i. d.) of values all from $Ray(x, \alpha)$. Find an estimator for the α parameter, $\widehat{\alpha}$, by the method of maximum likelihood.

6. Let $X \sim Uni(x, \alpha, \beta)$. Let $\{X_i\}_{i=1}^{n}$ be a random sample (i. i. d.) of values all from $Uni(x, \alpha, \beta)$. Find estimators for the α and β parameters, $\widehat{\alpha}$ and a $\widehat{\beta}$, by the method of moments.

That is all.

All are board-worthy problems.