

Assignment 10

(Deadline: 11/13/2009)

1. (Ex6.5) Show that if $X \sim F_{n,m}$, then $X^{-1} \sim F_{m,n}$.
2. (Ex6.6) Show that if $T \sim T_n$, then $T^2 \sim F_{1,n}$.
3. (Ex6.9) Let X_1, \dots, X_n be iid random variables drawn from $N(\mu, \sigma^2)$. Define $S^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$. Find the mean and variance of S^2 .
4. (EX6.10) Show how to use the chi-square distribution to calculate $P(a < S^2/\sigma^2 < b)$.