

HOMework ASSIGNMENTSHomework #6Assigned: 12/8/14Due: 12/16/14

1. (a) Problem 11.11 in John Freund's text book.

(b) Problem 11.12 in John Freund's text book.

2. (a) Problem 11.19 in John Freund's text book.

(b) Let X_1, \dots, X_n be a random sample from $\text{Normal}(\mu_1, \sigma^2)$ and independently let Y_1, \dots, Y_n be a random sample from $\text{Normal}(\mu_2, \kappa\sigma^2)$, where both $\mu_1, \mu_2, \sigma^2, \kappa > 0$ are all unknown. Find a $100(1 - \alpha)\%$ confidence interval for κ .

3. Problem 11.33 in John Freund's text book. Please compute a 95% confidence interval rather than a 90% confidence interval (requested by text book). Please pretend that σ_1 and σ_2 are sample standard deviations. [Hint: Check whether σ_1 can be taken equal to σ_2 (population variances) using the f interval, and then use the pooled t interval. Use statistical tables at the back of the book.]

4. (a) Problem 12.1 in John Freund's text book.

(a) We wish to test the parameter, θ , in $\text{Binomial}(n, \theta)$. Consider the two hypothesis tests (simple versus simple),

(i) $H_o : \theta = \theta_0$ vs $H_1 : \theta = \theta_1, \theta_1 > \theta_0$;

(ii) $H_o : \theta = \theta_0$ vs $H_1 : \theta = \theta_1, \theta_1 < \theta_0$.

Find a test statistic if the MLE, $\hat{\theta}$, is used as an estimator of θ . What are the acceptance and rejection intervals for the two tests?

5. (a) Problem 12.7 in John Freund's text book.

(b) Problem 12.9 in John Freund's text book.

6. (a) Problem 12.11 in John Freund's text book.

(b) For Problem 12.11 in John Freund's text book, find a uniformly most powerful size α critical region for testing $H_o : \theta \leq \theta_o$ versus $H_1 : \theta > \theta_o$.

7. Problem 12.22 in John Freund's text book.