Statistics 149 – Assignment 2
Due: Thursday, March 9, 2006

1. Sleuth, Chapter 19, # 10 (Please show calculations)
2. Sleuth, Chapter 19, # 13 (Please show calculations)
3. Sleuth Chapter 19, # 16 (Please show calculations)
4. Sleuth Chapter 19, # 19
5. Sleuth Chapter 20, # 11
6. McNemar test: One way of thinking of McNemar's test is to consider the distribution of n_{12} given the total number of observations in the off diagonal cells is $N = n_{12} + n_{21}$ under the null hypothesis. Justify
   (a) $n_{12}|N \sim Bin(N, 0.5)$
   (b) $E[n_{12} - n_{21}] = 0$
   (c) $\text{Var}(n_{12} - n_{21}) = N$
   (d)
   $$z = \frac{n_{12} - n_{21}}{\sqrt{N}} \overset{approx.}{\sim} N(0,1)$$
   if N is large.