Quiz_5

1.   Using the data in MHEALTH which you have from earlier, test the following:

We claim that men's mean pulse rate *equals* about 65 beats per minute.
Use alpha = 5%.

    a.   Test using the Confidence Interval approach. Show some work.
    b.   Test using the classical Test of Hypothesis approach. Show some work.
    c.   Test using the p-value approach

2.   Using the data in MHEALTH which you have from earlier, test the following:

We claim that *more than half* of all men have high cholesterol levels, i.e.; above 200 [mg/dL]. In our sample 27 of 40 are considered high by this criterion. Determine if our data supports or refutes the claim. Use alpha = 10%

    a   Test using the Confidence Interval approach. Show some work.
    b   Test using the classical Test of Hypothesis approach. Show some work.
    c   Test using the p-value approach

3.   Using the data in MHEALTH which you have from earlier, test the following:

We claim that the *variance* in systolic blood pressure has changed since this study was done. A recent study (http://aje.oxfordjournals.org/content/159/12/1168.full.pdf) gave men's systolic pressure as about 130 [mg/dL] with a variance of 272.1[mg/dL]^2. Specifically we claim that the *variance has changed* a statistically significant amount. Use alpha = 5%

    a   Test using the Confidence Interval approach. Show some work.
    b   Test using the classical Test of Hypothesis approach. Show some work.
    c   Test using the p-value approach

> We haven't done parts b and c in class, but you can probably figure it
> out (maybe with the help of the book). Use a test statistic of:
> $\chi^2 = (n\text{-}1)\, s^2 / \sigma^2$

4.   In measuring men's pulse rate if we are willing to accept no more than 2 beats per minute as our margin of error and we want to work at the 5% level of significance, *how many samples* should we have taken?