

For STT200 recitation 1 - 20 - 09.

Be prepared to hand in the following:

1. A copy of our own hand written notes (one side of a single page) briefly describing
Formulas expressing the CI for p , μ , $p_1 - p_2$, $\mu_1 - \mu_2$.
Fundamental claim made for CI.
Link between z and confidence level shown in the z -curve.
Finding z for given confidence using last two lines of the t -table.
Requirements on n , $N - n$, n_1 , $N_1 - n_1$, n_2 , $N_2 - n_2$.
Estimated standard errors of each of \hat{p} , \bar{x} , $\hat{p}_1 - \hat{p}_2$, $\bar{x}_1 - \bar{x}_2$.
Estimated margin of error for each of \hat{p} , \bar{x} , $\hat{p}_1 - \hat{p}_2$, $\bar{x}_1 - \bar{x}_2$ (use 1.96).

F.P.C. $\sqrt{\frac{N-n}{N-1}} \sim 1$ for N large relative to n .

$\sqrt{p(1-p)} \sim 1/2$ for p near $1/2$ (same for \hat{p} of course).

Also, on the back of the paper, hand in solutions of the following:

2. Use random digits 226 498 713 226 554 370 to select a random sample of three different pages from a book of 500 pages.
3. For the list $\{2, 4, 12\}$ calculate the mean (average) by hand. Using two different methods, calculate the sample sd s . Show your work. Confirm your answers with the reliable calculator you will bring to class and exams. Your textbook mentions suitable calculators to which I add TI36X Solar (needs light, no batteries, new cost \sim \$22).
4. We draw a random sample (no repeats) of 200 men from a population of 7,210 men discharged following a particular surgery. Of these 200 there are 41 who subsequently contacted their surgeon about for help with a particular treatable complication sometimes seen with this surgery. Independently of this sample we have also selected

a random sample of 316 women from a population of 8994 women discharged following the same surgical procedure. Of these 316 there are 17 who subsequently contacted their surgeon about help for the particular complication.

a. Calculate the 95% CI for $p_1 - p_2$ where p_1 is the population-wide rate of reported complications for the men and p_2 is the population-wide rate for women.

b. Does your 95% CI contain 0.0?

c. If the CI were entirely to the right of zero would you tend think p_1 is the larger, or p_2 ?

d. Does it seem that the $\sqrt{\frac{N_1 - n_1}{N_1 - 1}}$ or $\sqrt{\frac{N_2 - n_2}{N_2 - 1}}$ could have been left off without much affecting the result?

5. Refer to (4). We've scored each male sample x_1 = number of subsequent visits to the surgeons office concerning this complication. Likewise, we've scored each woman in the sample x_2 = number of subsequent visits to the surgeon's office about this complication. Processing the sample data we find

$$\bar{x}_1 = 2.78$$

$$s_1 = 3.42$$

$$\bar{x}_2 = 1.84$$

$$s_2 = 3.91$$

a. Calculate a 95% CI for $\mu_1 - \mu_2$.

b. Does your 95% CI contain 0.0?

c. If the CI were entirely to the right of zero would you tend think p_1 is the larger, or p_2 ?

BE SURE TO RETAIN A COMPLETE COPY OF YOUR SUBMISSION.