

MATH 156.6 — QUIZ IX

Here's a weird experiment: healthy middle-aged women were given bags of potato chips and bottles of water and told to snack freely. The amount they ate was measured. They were also interviewed, and it turned out that some of them said they were concerned about their weight and were trying not to eat too much, the others were unconcerned.

- The “concerned” were $n_c = 11$ women who ate an average of $\bar{X}_c = 32g$ (grams) of potato chips, with a standard deviation of $S_c = 33g$.
- The “unconcerned” women, numbering $n_u = 9$, ate an average of $\bar{X}_u = 59g$ with standard deviation $S_u = 21$.

What does this small amount of data tell us about the general hypothesis that women unconcerned about their weight eat more snack food than concerned women do?

Remember: 2-sample test statistic is $t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$. When doing (any) test of significance, you

(1) state what the variables and hypotheses are in the problem situation; (2) compute the test statistic ; (3) compute the p -value; and (4) draw a conclusion, stated both in terms of your hypotheses and also in the terminology of the problem. Make sure you explain each formula you are (or your calculator is) using, defining terms and commenting on how it works.