Professor Notes About the "Hypothesis Testing" Homework

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P-Value Calculations and Decisions

1. The p-value is "the probabiity of observing a sample mean of 73 or less if the population mean is 80." The null hypothesis is rejected because the p-value (=0.0276)$< \alpha$.
2. The p-value is "the probabiity of observing a sample mean of 1370 or 'different' if the population mean is 1500." The null hypothesis is not rejected because the p-value (=0.3041)$> \alpha$.

Beetle Size

1. $H_A : \mu > 190$ vs. $H_0 : \mu = 190$.
2. $\bar{x}$=194.167 mm.
3. p-value=0.103.
4. Do not reject H_0 because the p-value $> \alpha$.
5. Average thorax does not appear to be greater than 190 mm.¡/li¿

R Appendix.

```
library(NCStats)
distrib(73,mean=80,sd=20/sqrt(30))
2*distrib(1370,mean=1500,sd=800/sqrt(40))
setwd("c:/stats")
d <- read.csv("Beetles.csv")
d <- filterD(d,species=="Halticus.oleracea")
distrib(round(194.167,mean=190,sd=14/sqrt(18),lower.tail=FALSE)
```