Professor Notes About the "Confidence Regions" Homework

- In the sample size calculation, the Z^* is always computed as an "interval" and not a (lower or upper) bound.

Confidence Region Calculations

1. See below.
   (a) C=0.95
   (b) Upper bound
   (c) Z*=1.645.
   (d) 79.0.
   (e) I am 95% confident that the true population mean is less than 79.0.
2. See below.
   (a) C=0.95
   (b) Interval
   (c) Z*= ± 1.960.
   (d) 1122.1-1617.9.
   (e) I am 95% confident that the true population mean is between 1122.1 and 1617.9.

Beetle Size

1. 188.7
2. I am 95% confident that the true population mean thorax length is greater than 188.7 mm (i.e., a lower bound).

Calf Growth

The required sample size to estimate the growth of the calves within 50 g per day with 99% confidence assuming that σ=200 is 107.

R Appendix.

```
library(NCStats)
zstar <- distrib(0.95,type="q")
zstar <- distrib(0.975,type="q")
distrib(0.95,type="q",lower.tail=FALSE)
me <- 50
sigma <- 200
zstar <- distrib(0.995,type="q")
( n <- (zstar*sigma/me)^2 )
```