Professor Notes About the "Sampling Distributions" Homework

- Note, in the "Deer" question, the explicit description for why a question cannot be answered. Especially, note the explicit statement of which distribution is not normal and the providing of a reason or reasons for why the distribution is known not to be normal.
- Note, in the "Deer" question, that probabilities are never expressed as percentages; they are always expressed as proportions.
- Note, in the "Deer" question, the use of the SE in `sd=` of `distrib()` when using the sampling distribution. R does not know when you are using a sampling or a population distribution, so you must provide the correct measure of variability.
- In the "Deer" question, I did not show graphics of the probability calculations just to save space.

Reproductive Habits of Roe Deer

1. This question cannot be answered because the population distribution is not known to be normal (background says that it is right-skewed).
2. This question cannot be answered because the sampling distribution is not known to be normal because the sample size is not greater than 30, nor greater than 15, nor is the population normally distributed.
3. The probability that a sample of 35 roe deer will have an average of more than 2 fawns is 0.99.
4. The probability that a sample of 35 roe deer will have an average of between 2 and 2.3 fawns is 0.90.
5. The most common 90% of sample means in samples of n=35 are between 2.07 and 2.33.
6. The lowest 20% of sample means in samples of n=35 are below 2.13.

Precision and Accuracy

1. The numbers 59, 60, 60, 61 represent values that are accurate and precise (i.e., values are close together and centered on (average out to be) 60).

2. The numbers 45, 55, 65, 70 represent values that are accurate but imprecise (i.e., values are far apart and centered on 60).

3. The numbers 69, 70, 71, 72 represent values that are inaccurate but precise (i.e., values are close together and NOT centered on 60).

4. The numbers 75, 85, 95, 105 represent values that are inaccurate and imprecise (i.e., values are far apart and NOT centered on 60).

R Appendix.

```
library(NCStats)
( distrib(2,mean=2.2,sd=0.46/sqrt(35),lower.tail=FALSE) )
ab <- distrib(2.3,mean=2.2,sd=0.46/sqrt(35))
a <- distrib(2,mean=2.2,sd=0.46/sqrt(35))
ab-a
( distrib(0.05,mean=2.2,sd=0.46/sqrt(35),type="q") )
( distrib(0.05,mean=2.2,sd=0.46/sqrt(35),type="q",lower.tail=FALSE) )
( distrib(0.20,mean=2.2,sd=0.46/sqrt(35),type="q") )
```