Confidence Interval Worksheet

1. Consider the following sample data, selected at random from some population:

    12, 16, 5, 19

    a) What is your best guess for the unknown population mean?

    b) Find the standard error for the sample mean?

    c) Find a 95% confidence interval for the unknown population mean.

2. Use the GSS survey data to find the average number of siblings for people in the US in 1996 with reasonable accuracy.

    Note: Using StatCrunch we found that the descriptive statistics for the variable 'sibs' is as follows:

N	2897
Mean:	3.86
Standard Deviation:	3.52

2. If we wanted to find the average years of schooling for people in the US in 1996, how could we use the data collected from the GSS survey to answer that question? Make sure to specify the accuracy of your answer as best as possible.

4. Use StatCrunch to find a 90%, 95%, and 99% confidence interval for the number of children (childs) in our GSS survey. What does this mean? Why is the 99% interval larger than the 90% interval?

5. The lifetimes (in months) of ten randomly selected automobile batteries of a particular brand are:

    22   17   20   21   17   23

    The manufacturer claims, however, that this particular make of battery has an 18 month lifetime. Do you believe the manufacturers claim? *Hint: compute a 95% confidence interval and compare with claim.*

6. The caffeine content of a random sample of *81* cups of black coffee dispensed by a new machine is measured. The mean and standard deviation for the sample are *110 mg* and *5.0* mg, respectively. The manufacturer of the machine claims that the average caffeine content per cup is *109 mg*. Do you believe that the manufacturer's claim is valid or invalid?