Chapter 5 Worksheet 1

1. In 2006, the Florida Poll conducted by Florida International University asked whether current environmental regulations are too strict or not too strict. Of 1200 respondents, 229 said they were too strict. Find and interpret a) 99% confidence interval for a relevant parameter at the time of that survey.

2. An advocacy group took a random sample of 1000 consumers who recently purchased a MP3 player and found that 400 were happy with their purchase. The advocacy group found a standard deviation of 5 and a mean of 21. What is a 90% confidence interval for happy customers?
3. Suppose we want to estimate the average weight of an adult male in Dekalb County, Georgia. We draw a random sample of 1,000 men from a population of 1,000,000 men and weigh them. We find that the average man in our sample weighs 180 pounds, and the standard deviation of the sample is 30 pounds. What is the 90% confidence interval?

4. The operations manager of a large production plant would like to estimate the amount of time a worker takes to assemble a new electronic component. Assume that the standard deviation of this assembly time is 3.6 minutes. After observing 20 workers assembling similar devices, the manager noticed that their average time was 16 minutes. Construct a 90% confidence interval for the mean assembly time.
5. A study of 66,831 dairy cows found that the mean milk yield was 12.5 oz per milking with a standard deviation of 4.3 oz per milking. Construct a 95% confidence interval for the average milk yield in the population.

6. One question on a recent general survey asked, “Do you think that it should be government’s responsibility to reduce income differences between the rich and the poor?” Those answering yes included 90 of the 142 subjects who called themselves strong Democrats in political party identification and 26 of the 102 who called themselves strong Republican. Find the point estimate of the population proportion who would answer yes for each group and find the 95% confidence interval.
7. The 2014 GSS asked respondents whether they favored or opposed the death penalty for people convicted of murder.

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<tr>
<th>Favor</th>
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<th>Sample prop</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>850</td>
<td>1530</td>
<td>0.556</td>
<td>(0.531, 0.580)</td>
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a. Show how to obtain the value reported under “Sample prop.”

b. Can you conclude that more than half of all American adults are in favor? Why?

c. Find the 95% CI for the proportion of American adults who opposed the death penalty.