Final Test: (Long response, show your work) **STATISTICS** Summer 2017 Juan P Lledias

I. From the following **sample** of 14 responses on a 8-point scale measuring whether sexual orientation should be protected by civil rights laws (1 strongly opposed and 8 strongly in favor, standard deviation of the population 2.1):

1 1 2 2 3 3 4 5 5 5 6 7 8 8

a. Estimate the standard error of the mean.

b. Find the 95% confidence interval for the population mean.

c. Find the 99% confidence interval for the population mean.

II. A legal researcher wanted to measure the effect of length of a criminal trial on the length of jury deliberation. He observed in a sample of 11 randomly selected trials the following data (the length of trial in days and the length of jury deliberation in hours):

Days	Hours
2	6
7	12
3	7
4	7
1	4
1	5
5	8

3	7
2	4
10	14
7	10

a. Draw a scatter plot

b. Calculate the correlation coefficient.

c. Calculate and draw the regression line on the scatter plot.

d. Predict the deliberation time for a 6 days trial.

III. A polling organization interviewed by phone 480 randomly selected about their opinion on drug testing of professional baseball players and found that 64% favored such a regulation:

a. Find the standard error of the proportion.

b. Find the 90% confidence interval.

c. Find the 95% confidence interval.

d. Find the 99% confidence interval.

IV. IQ scores are normally distributed with a mean of 100 and a standard deviation of 15. Based on this distribution, determine:

a. The percent of IQ between 105 and 125.
b. Probability of selecting a person at random with IQ between 85 and 115.
c. Percent of scores between 100 and 130.
d. Percentile rank of IQ 145.
e. Percentile rank of IQ 90.