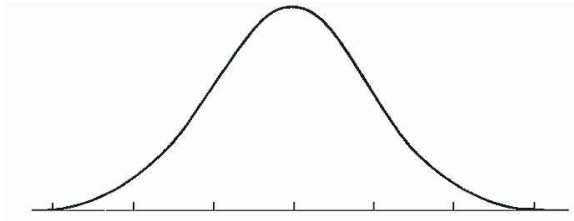


1. The credit score for college students is normally distributed with mean 630 with a standard deviation of 7. You will need to know that the 10th percentile of a standard normal distribution is -1.28 for some of the questions below.

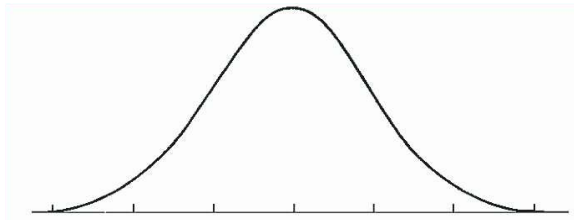
(a) Are you more likely to meet a college student with a credit score below 621 or above 641?

(b) Your credit score is 635, and you want to know what percent of students have scores higher than yours. Find the number of standard deviations away from the mean your score is, and label that value on the axes and the probability you would need on the standard normal distribution below.



(c) About 10% of randomly selected students will have a sample mean credit score less than what number?

(d) If you take a sample of 25 students and find their average credit score, what is the probability that the average will be greater than 628? Label that axes and the probability you would need on the standard normal distribution below.



(e) About 10% of random samples of 25 students will have a sample mean credit score greater than what number?

(f) What is the probability that your sample average will be greater than the population average?

2. Put the following probabilities in order from smallest to largest.

- (a) $P(z < -1)$
- (b) $P(z > 1.5)$
- (c) $P(z < -2)$
- (d) $P(z > 0)$

smallest probability _____ largest probability

3. What is the difference between a distribution and a sampling distribution.

4. What does the Central Limit Theorem say?

5. Which of the following are true regarding 95% confidence intervals for the mean of one sample? Circle all that apply.

- (a) If we were to create 100 confidence intervals from 100 different random samples, we would expect about 95 of them to contain μ .
- (b) If we were to create 100 confidence intervals from 100 different random samples, we would expect about 5 of them to not contain μ .
- (c) If we were to create 100 confidence intervals from 100 different random samples, we would expect about 5 of them to not contain \bar{x} .
- (d) There is a 95% chance that the confidence interval contains μ .
- (e) There is a 5% chance that the confidence interval does not contain \bar{x} .

6. You anonymously survey 40 recent graduates from CSU and ask: “After an average work day, about how many hours do you have to relax or pursue activities that you enjoy?”. The average answer was 1.72 hours with a standard deviation of .9 hours. Construct a 95% confidence interval for the mean number of hours spent relaxing or pursuing activities they enjoy. Write the general formula first and show you work.

95% Confidence Interval for _____ : (_____, _____)

7. You are a wedding planner and know that the number of people who RSVP Yes to a wedding invitation is not always the same and the number of people who attend the wedding. You take a sample of 20 weddings that you have planned and record the number of people who marked that they would be attending on the RSVP and the number of people who actually attended the wedding. You then find the difference for each event, by taking (Actually Attended - RSVP Yes). You run descriptive statistics on the differences and find the results to the right.

<i>Difference</i>	
Mean	2.5
Standard Error	
Median	3
Mode	5
Standard Deviation	4.135851
Sample Variance	17.10526
Kurtosis	-0.2305
Skewness	-0.58525
Range	15
Minimum	-7
Maximum	8
Sum	50
Count	20

- (a) Calculate the number that should be found next to standard error in the Excel output.
- (b) Give the 95% confidence interval for the mean difference of (Actually Attended – RSVP Yes). Write the general formula first and show you work.

95% Confidence Interval for _____ : (_____, _____)

- (c) Given the above confidence interval, do you think that there is a difference between the actual attendance and the number who RSVP Yes? Explain why or why not. If you believe there is a difference, which is higher, actual or RSVP?

8. A random sample of 200 professional soccer players is taken to determine if players who are left-footed or right-footed have a better accuracy when making freekicks. There are 46 left-footed players in the sample, and their average accuracy is 47% with a standard deviation of 18%. There are 154 right-footed players in the sample, and their average accuracy is 43% with a standard deviation of 17%.
- (a) Find the 95% confidence interval for the difference in accuracy of left and right-footed players. Write the general formula first and show your work.

95% Confidence Interval for _____ : (_____, _____)

- (b) Based on your confidence interval above, is it plausible that there is no difference between left and right-footed players? Explain why or why not. If there is a difference, which players have a higher accuracy?