Chapter 8 Overview & Summaries

8.1 Confidence Intervals: The Basics

1. A point estimator is a statistic that…

2. The value of the point estimator statistic is called a _____ and it is our "best guess" at the value of the _____.

3. In statistics, what is meant by a 95% confidence interval?

4. What information does the margin of error provide?

5. Interpret a confidence *level:* "To say that we are 95% confident is shorthand for …..

6. Explain how to interpret a confidence *interval.*

7. Does the confidence level tell us the chance that a particular confidence interval captures the population parameter? If not, what does it tell us?

8. Why do we want high confidence and a small margin of error?

9. Explain the two situations when the margin of error gets smaller.

10. Describe how to check the three conditions for constructing a confidence interval for p or u (mean).

Random	
Normal/Large Sample Size	
Independent	

8.2 Estimating a Population Proportion

1. In statistics, what is meant by a sample proportion: $\hat{p}$?

2. Give the mean and standard deviation for the sampling distribution of $\hat{p}$?

3. Define standard error.

4. How do you calculate the standard error of $\hat{p}$?

5. What formula is used to determine the sample size necessary for a given margin of error?

6. Complete for a one-proportion z interval.

Formula	
Parameter	
Assess Conditions	1. 2. 3.
Name Interval	
Interval	
Conclude in Context	

8.3 Estimating a Population Mean

1. What is the formula for the margin of error of the confidence interval for the population mean?

2. How can you arrange to have both high confidence and a small margin of error?

3.

	Change in margin of error	**Why?**
Increase sample size		
Increase confidence level (95% to 99%)		
Decrease standard deviation		

4. How do you calculate the degrees of freedom for a t distribution?

5. What happens to the shape of t distribution as the degrees of freedom increase?

6. Describe the similarities and differences between a standard normal distribution (z) and a t distribution.

Similarities	**Differences**

7. What is the formula for the standard deviation of the sampling distribution of the sample mean?

8. What is the standard error of the sample mean?

9. What does it mean if an inference procedure is robust?

10. Normal condition & sample size in t distributions.

Sample Size	**Evaluation Strategy**	**Conclusion**
Less than 15		
Between 15 and 30		
30 or greater		

11. Complete for one-sample t interval or one-sample z-interval.

Formula	
Parameter	
Assess Conditions	1. 2. 3.
Name Interval	
Interval	
Conclude in Context	