Name:_____

AP Statistics Assignment 10.2 and 10.3 T-interval and Confidence Intervals for Proportions

1. What is a T-interval? When we do we use a T-interval as opposed to a Z-interval?

2. What is a Degree of Freedom? Why do we use it? Explain:

3. What is the T-score for a 95% confidence interval with a sample size of 20? Show your work:

4. What is the T-score for a 90% confidence interval with a sample size of 53? Show your work:

5. How do you calculate the standard error for a T-interval? How is this different from a Z-interval?

6. What conditions must be met to create a T-interval?

7. What a Z-interval for Proportions? How is this different from a Z-interval for mean? Explain:

8. Is there a sampling distribution for proportions when creating a Z-interval for Proportion? Why or why not?

9. What is the purpose of the Z-interval for Proportion? What are you looking for?

10. How do you calculate the standard error for a Z-interval for Proportion? Explain:

11. What is the domain of the interval [a,b] for a Z-interval for Proportion? Explain:

12. How is sample proportion calculated? Explain:

13. What conditions must be met to create an Interval for Proportions? Explain:

14. When creating a Z-interval for Proportion, does the sample size need to be 30 or greater? Explain:

15. The conductivity of glass is usually around 1, the greater it is, the poorer it is at preserving heat. The following measurements are the heat conductivity of a particular type of glass used in construction:

    1.11, 1.07, 1.11 1.07, 1.12 1.08 1.08 1.18 1.18 1.18 1.12

    Create a 95% confidence interval for the mean conductivity of this particular type of glass used:

16. 55 random samples of Mars Chocolate bars were weighed and the data collected below. Critics suggest that they increase the weight of the bar because it does not meet the minimum threshold of 50g. Create a 95% confidence interval for the mean weight of a Mars Chocolate bar

48	49	52	51	50	52	49	47	50	51	49
48	46	51	48	49	50	48	52	51	49	51
51	50	49	51	50	49	48	50	50	48	50
47	49	51	53	51	49	51	46	53	49	51
50	50	50	51	49	50	51	50	51	49	50

a) State the parameters and statistics involved

b) What is the sample mean and sample standard deviation?

c) Will you be create a Z-interval or T-interval? Explain:

d) What conditions must be met to create the confidence interval? Are these conditions met?

e) What is the degree of freedom? What is your T-score?

f) Create a 95% confidence interval. Interpret this confidence interval

g) According to your results, are critics correct in suggesting that the company increase their chocolate bar weights? Explain:

17. Telephone Polls are conducted during elections to predict outcomes. In the recent BC provincial, A non-partisan 3rd party company conducted a poll in Burnaby and surveyed 3500 residences. 1571 residences supported the NDP party and their policies. Create a 95% confidence interval for the proportion of residence in Burnaby that favors the NDP party.

a) State the parameters and statistics involved

b) What is the sample proportion and standard error?

c) Will you be creating a Z-interval or Mean or Proportion? Explain:

d) What conditions must be met to create the confidence interval? Are these conditions met?

h) Create a 95% confidence interval. Interpret this confidence interval

e) According to your results, will the NDP win the Burnaby riding in the Provincial election?

18. To forecast the state of the US economy and the trend of the S&P 500 for the next six months, analysts would use the Estimated Growth percentage of stocks. A random sample of 50 stocks in the index were selected and it showed a mean EGP of 12.1% [*s = 2.3%*]

a) State all the parameters and statistics involved

b) Will you be create a Z-interval for mean, T-interval, or Z-interval for Proportion? Explain:

c) What conditions must be met to create the confidence interval? Are these conditions met?

d) What is the degree of freedom? What is your T-score?

e) Create a 95% confidence interval. Interpret this confidence interval

f) According to your results, are we heading into a BULL market or Bear Market?