Math 1040 Worksheet 9 – Chapter 9   Name_____
Trygstad

Solutions are included at the end of the worksheet. This worksheet is optional and will not be turned in, but may be helpful in reviewing material and studying for exams.

1) Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 14 car owners showed that their average repair bill was $192 with a standard deviation of $8.

2) A researcher at a major clinic wishes to estimate the proportion of the adult population of the United States that has sleep deprivation. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 4%?

3) Construct a 95% Z–interval or a 95% t–interval about the population mean. Assume the data come from a population that is approximately normal with no outliers.

   Fifteen randomly selected men were asked to run on a treadmill for 6 minutes. After the 6 minutes, their pulses were measured and the following data were obtained:

105	94	98	88	104
101	99	85	84	124
122	114	97	101	90

4) The principal at Riverside High School would like to estimate the mean length of time each day that it takes all the buses to arrive and unload the students. How large a sample is needed if the principal would like to assert with 90% confidence that the sample mean is off by, at most, 7 minutes. Assume $\sigma = 14$ minutes.

5) When 425 junior college students were surveyed, 190 said they have a passport. Construct a 95% confidence interval for the proportion of junior college students that have a passport.

6) When 500 junior college students were surveyed,120 said that they have previously owned a motorcycle. Find a point estimate for p, the population proportion of students who have previously owned a motorcycle.

7) Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of eight private colleges in the United States revealed the following endowments (in millions of dollars): 77.1, 41.6, 248.6, 497.2, 119, 173.9, 108.5, and 212.4. What value will be used as the point estimate for the mean endowment of all private colleges in the United States?

8) A group of 49 randomly selected parrots has a mean age of 22.4 years with a population standard deviation of 3.8. Compute the 98% confidence interval for μ.

9) A certain confidence in interval is $8.15 < \mu < 9.45$. Find the sample mean $\bar{x}$ and the margin of error E.

10) Which of the following is not a characteristic of Students' t distribution?
A) mean of 1
B) For large samples, the t and z distributions are nearly equivalent.
C) depends on degrees of freedom.
D) symmetric distribution

1) ($186.30, $197.70)
2) 1037
3) (93.7, 107.1); we are 95% confident that the mean pulse rate of men after 6 minutes of exercise is between 93.7 and 107.1 beats per minute.
4) 11
5) (0.400, 0.494)
6) 0.240
7) 184.788
8) (21.1, 23.7)
9) Sample mean $\bar{x} = 8.80$ and the margin of error, $E = 0.65$.
10) A