

A.P. Statistics
Assignment 8.1

Remember to show your thinking through your work.

- 1) Describe the difference between a t-distribution and a normal distribution.

- 2) Describe the difference between a t-distribution with 2 degrees of freedom and a t-distribution with 20 degrees of freedom.

- 3) When do we use t instead of z?

- 4) Other than using t instead of z, what other differences are there between constructing a z-interval and constructing a t-interval?

- 5) What critical value t (you may use your table from your formula packet) should be used for a confidence interval for the mean of the population in each of the following situations?

- (a) A 90% confidence interval based on $n = 12$ observations.

- (b) A 95% confidence interval from an SRS of 30 observations.

- (c) An 80% confidence interval from a sample of size 18.

- 6) You want to rent an unfurnished one-bedroom apartment for next semester. You take a random sample of 10 apartments advertised in the local newspaper and record the rental rates. Here are the rents (in dollars per month):

500 650 600 505 450 550 515 495 650 395

- a) Find a 95% confidence interval for the mean monthly rent for unfurnished one-bedroom apartments available for rent in this community.

- b) If you chose 99% rather than 95% confidence, would your margin of error in the previous exercise be larger or smaller? Explain your answer and verify it by doing the calculations.

- 7) A manufacturer of small appliances employs a market research firm to estimate retail sales of its products. Here are last month's sales of electric can openers from an SRS of 20 stores in the Midwest sales region:

19	19	16	19	25	26	24	63	22	16
13	26	34	10	48	16	20	14	13	24

Find the 95% t confidence interval for the mean.