

Determine the type of  
inference essay



**ASSIGN  
BUSTER**

For each number, determine the type of inference, state the assumptions, and answer the questions. A random survey of 57 students was conducted to compare Juniors and seniors employment status. Seven out of 18 Juniors held a Job while 16 out of 39 seniors held a Job. Find and interpret a 98% confidence interval. Is there evidence at the 1% significance level that more seniors have a Job than Juniors? If so, what might explain this? Cocaine addicts need cocaine to feel any pleasure, so perhaps giving them 2. An antidepressant drug will help.

A three-year study with 72 chronic cocaine users compared an antidepressant drug called despairing against lithium (a standard drug to treat cocaine addiction), and of course a placebo as well. The subjects were randomly assigned to receive each treatment. Here are the results: | | Cocaine Relapse? | Group | Treatment | Yes | No | 1 | Despairing | 10 | 14 | 1 | 2 | Lithium | 11 | 8 | 1 | 3 | Placebo | 12 | 0 | 14 | 1 (a) Make a graph to compare the rates of cocaine relapse for the three treatments. Describe what you see. (b) Is there a relationship between Treatment and Cocaine Relapse?

A random study of 25 people on whether fidgeting and other "non-exercise Activity" (NEE) can explain why some people don't gain weight when they overeat was done. Output for this study is shown below. Regression Analysis: Fat gain versus NEE change | Predictor | Coffee | Scope | IT | IP | constant | 3.5051 | 0.3036 | 11.54 | 0.0003 | NEE change | -0.065 | 0.014 | s = -0.75 | R-sq | (a) Explain what  $s = 0.75$  means. (b) Find and interpret a 90% confidence interval for the slope of the regression line. (c) Does a linear relationship exist between fidgeting and NEE change?

A statistics student wants to compare the mean times needed to access flight information for two major airlines. Thirty randomly selected students accessed one airline's "On-Time" Web site, and the time required to locate the flight information using that Web site had a mean of 2.5 minutes and a standard deviation of 0.8 minutes. Thirty different randomly selected students accessed the other airline's "Real-Time" Web site, and the time required to locate the flight information using the Web site had a mean of 2.1 minutes and a standard deviation of 1. Find and interpret a 95% confidence interval. (c) Is there evidence that "On-Time" web site takes significantly longer than "Real-Time" web site in locating the flight information?

5. Charles Darwin, author of *On the Origin of Species* (1859), designed an experiment to compare the effects of cross-fertilization and self-fertilization on the size of plants. He planted pairs of very similar seedling plants, one self-fertilized and one cross-fertilized, in each of the 15 plots at the same time. After a period of time, Darwin measured the heights (in inches) of all the plants.