

1. You found a survey online that says the average rent in Los Angeles is \$1,800 per month. You believe that the average rent is higher. A study conducted using 500 renters in Los Angeles showed that the average rent is \$2100. The population standard deviation is known to be \$450. Use $\alpha = 0.05$.

- a. Based on your knowledge of hypothesis testing, what is your decision about average rent? Use the six step process and a diagram.
- b. Does your decision about average rent change at .01 level of significance?

2. A report from Bureau of Labor Statistics (BLS) states, "The mean annual income of recent college graduates is normally distributed with a mean of \$51,000 and a population standard deviation of \$3,200". Although you are a few years away from graduation, you want to use your statistical prowess to see if annual income is more or less than \$51,000. A sample of 150 recent college graduates is taken and the mean annual income for this sample was found to be \$51,550.

- a. If the level of significance is .05, what can you conclude about your hypothesis? Use the six step process and a diagram.
- b. Does your decision about mean annual income change if the level of significance is 0.01?

3. A report from Bureau of Labor Statistics (BLS) states, "The mean annual income of recent college graduates is normally distributed with a mean of \$51,000 and a population standard deviation of \$3,200". Although you are a few years away from graduation, you want to use your statistical prowess to see if annual income is more or less than \$51,000.

You don't really trust the population standard deviation numbers from BLS report so, you set out to run hypothesis testing from your own circle of friends. You call ten of your close friends who recently graduated from college, and recorded their annual incomes as:

\$42,000; \$52,000; \$51,000; \$53,000; \$48,000; \$49,125; \$50,000; \$51,300; \$55,550; \$62,300

- a. If the level of significance is .05, what can you conclude about your hypothesis? Use the six step process and a diagram.
- b. Does your decision about mean annual income change if the level of significance is 0.01?

BONUS: Calculate the p-value for Q1 and Q2.