

# STAT100 Elementary Statistics and Probability Summer II 2014

Quiz 10, Friday, August 15, 2014

Name: \_\_\_\_\_

Show all work clearly and in order, and circle your final answers. Justify your answers algebraically whenever possible. You are allowed to calculator for basic calculation in this quiz. You have 15 minutes to take this 10 point quiz.

1. (5 points) A set of data has the following summary statistics

$$n = 30, \quad \bar{x} = 25.35 \quad s = 2.15.$$

Do the data substantiate the conjecture that  $\sigma < 2.2$ ? Test at  $\alpha = .05$ .

2. (5 points) Given the following 2 data sets from 2 populations.

$$n_1 = 300, \quad \bar{x} = 17.2 \quad s_1^2 = 18.$$

$$n_2 = 500, \quad \bar{y} = 17.5 \quad s_2^2 = 15.$$

Find the 95% confidence interval of the difference in population means. Use the result to determine whether the conjecture that the 2 populations have different means is supported from the data. (Take  $\alpha = .05$ ). *Hint: Use the relation between confidence interval and two-sided testing hypotheses to determine that rejecting or retaining the null hypothesis.*