

My signature on this assessment confirms I have used no outside resources and adhered to all assessment protocols assigned to this daily grade/quiz/test/exam.

AP STAT

QUIZ: Inference

Name _____

Ch. 12 & Ch. 13[50 pts]

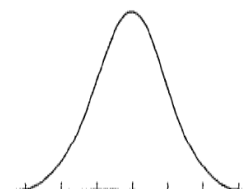
1. A statistics student designed an experiment to test the life (in minutes) of brand name and generic batteries. She used 6 pairs of D batteries from each of a brand name and generic battery manufacturer. She kept a battery powered flashlight on until no more light could be seen then recorded the number of minutes the flashlight worked. The following table gives the resulting data from randomly selected batteries for her experiment. Assuming the distribution of battery life is normal, do these results give statistical evidence at the 10% level that there is a difference in mean battery life of brand name and generic batteries? [20 pts]

• State:

Brand Name	Generic
194.0	190.7
205.5	203.5
199.2	203.5
172.4	206.5
184.0	222.5
169.5	209.4

• Plan:

• Do:

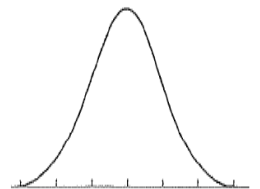


2. Employers are concerned about the effect of stress on their employees. Stress can lower morale and efficiency and increase medical costs. A large survey of restaurant employees found that 75% reported that work stress had a negative impact on their personal life. In other words, they weren't happy. The human resources manager of a chain of restaurants is concerned that work stress may be affecting the chain's employees. She asks a simple random sample of 100 employees to respond yes or no to the question, "Does work stress have a negative impact on your personal life?" Of these, 69 say "yes." Is there evidence to conclude that the workers for this chain of restaurants are actually **happier** than the national survey portrays? Carry out an appropriate test using a 5% significance level to support your answer. [20 pts]

- State:

- Plan:

- Do:



3. You work at a parachute manufacturing plant and are in charge of quality control. You inspected a large shipment of parachutes for defects, found none, then sent them to West Point to be used by the cadets in training. [10 pts]

a) Define, in words and in context of this problem, the null and alternative hypotheses.

H_0 : _____

H_a : _____

b) In context of this problem, discuss a **Type I error** and its consequence.

Type I error:

Consequence:

c) In context of this problem, discuss a **Type II error** and its consequence.

Type II error:

Consequence: