In-Class
Sections 9.2-9.4
Math 110: Elementary Statistics

Name_____

1) The Golden Comet is a hybrid chicken that is prized for its high egg production rate and gentle disposition. According to recent studies, the mean rate of egg production for 1-year-old Golden Comets is 5.9 eggs/week.

Sarah has 43 1-year-old hens that are fed exclusively on natural scratch feed: insects, seeds, and plants that the hens obtain as they range freely around the farm. Her hens exhibit a mean egg-laying rate of 6.8 eggs/week.

Sarah wants to determine whether the mean laying rate μ for her hens is higher than the mean rate for all Golden Comets. Assume the population standard deviation to be $\sigma = 1.2$ eggs/week.

i. State the appropriate null and alternate hypotheses.
ii. Compute the value of the test statistic.
iii. State a conclusion. Use the $\alpha = 0.05$ level of significance.

2) A machine that fills beverage cans is supposed to put 24 ounces of beverage in each can. Following are the amounts measured in a simple random sample of eight cans.

24.00	23.94	23.96	23.98
23.91	23.90	23.83	23.95

Assume that the sample is approximately normal. Can you conclude that the mean volume differs from 24 ounces? Use the $a = 0.1$ level of significance.

3) In a survey of 705 cigarette smokers, 50 of them reported that they have tried hypnosis therapy to try to quit smoking. Can you conclude that less than one-tenth of smokers have tried hypnosis therapy? Use the $a = 0.01$ level of significance.

Answer Key

1) *i.* $H_0 : \mu = 5.9, H_1 : \mu > 5.9$

ii. z = 4.92

iii. Reject H_0.

There is enough evidence to conclude that the egg production rate of Sarah's hens exceed that of the general population.

*2.)*Yes. The mean fill volume appears to differ from 24 ounces.

3.)Yes