Economics 103A Dr. Tom Means

Exams #2 Fall 2012

Name

Answer all of the questions in order. Show all of your work. No credit will be given for correct answers with no work shown. Partial credit will be awarded where possible. Point values are shown to the left of each question. Good luck. (70 points)

1. **Consumer** **Retorts,** a leading consumer magazine, claims that secret red clam sauce sold at Vinnie’s Grocery Store are not bottled at an average net weight of 24 ounces. A sample of 25 jars yielded the following information:

- a **sample mean** of 23.80 ounces and a **sample standard deviation**  of 0.25 ounces.

(10) a. Set up a 95% confidence interval for the true population mean?

(10) b. At the 5% level, test the hypothesis whether the true net weight is less than 24 ounces.

2.The consumer magazine also claims that the super-extra-large pizza's served at Vinnie’s are not 36 inches in diameter. A random sample of 16 pizza's yields the following results:

* the **sample mean** equals 35.70 inches
* it is known from previous studies that the **population standard deviation** equals 0.4 inches.

(10) a. Test the hypothesis that the true population mean is not equal to 30 inches. Set the type one error equal to 10%.

(5) b. What sample size is required if you want to be 95% sure that the sample mean will be within 0.25 inches of the true mean.

(10) c. Set up a 99% confidence interval for the true mean?

1. A late survey taken this last weekend of 500 voters found only 220 voters in favor of Jerry Brown’s tax initiative Proposition 30.

(10) a. Construct a 95% confidence interval for the true proportion(p).

(10) b. At the 1% level test the null hypothesis that the voters are evenly divided? Use a two-tail test.

(5) c. What sample size is required if the pollsters want to be 90% sure that the true proportion is within three percentage points.