

## Honors Statistics

### 6.4 Reivew

#### Provide an appropriate response.

- 1) Find the critical value,  $t_c$  for  $c = 0.99$  and  $n = 10$ .
- 2) Find the critical value,  $t_c$  for  $c = 0.95$  and  $n = 16$ .
- 3) Find the critical value,  $t_c$  for  $c = 0.90$  and  $n = 15$ .
- 4) Find the value of  $E$ , the margin of error, for  $c = 0.90$ ,  $n = 16$  and  $s = 2.3$ .
- 5) Find the value of  $E$ , the margin of error, for  $c = 0.99$ ,  $n = 15$  and  $s = 5.7$ .
- 6) In a random sample of 28 families, the average weekly food expense was \$95.60 with a standard deviation of \$22.50. Determine whether a normal distribution or a t-distribution should be used or whether neither of these can be used to construct a confidence interval. Assume the distribution of weekly food expenses is normally shaped.
- 7) For a sample of 20 IQ scores the mean score is 105.8. The standard deviation,  $\sigma$ , is 15. Determine whether a normal distribution or a t-distribution should be used or whether neither of these can be used to construct a confidence interval. Assume that IQ scores are normally distributed.
- 8) A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed.  
  
\$3.60 \$4.50 \$2.80 \$6.30 \$2.60 \$5.20 \$6.75 \$4.25 \$8.00 \$3.00  
  
Find the 95% confidence interval for the true mean.
- 9) The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed.  
  
2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8  
  
Find a 98% confidence interval for the true mean.
- 10) A manufacturer receives an order for fluorescent light bulbs. The order requires that the bulbs have a mean life span of 750 hours. The manufacturer selects a random sample of 25 fluorescent light bulbs and finds that they have a mean life span of 745 hours with a standard deviation of 15 hours. Test to see if the manufacturer is making acceptable light bulbs. Use a 95% confidence level. Assume the data are normally distributed.
- 11) Construct a 90% confidence interval for the population mean,  $\mu$ . Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78.

## Answer Key

Testname: UNTITLED1

- 1) 3.250
- 2) 2.131
- 3) 1.761
- 4) 1.01
- 5) 4.38
- 6) Use the t-distribution.
- 7) Use normal distribution.
- 8) (\$3.39, \$6.01)
- 9) (1.55, 3.53)
- 10) (738.81, 751.19). Because the interval contains the desired life span of 750 hours, they are making good light bulbs.
- 11) (2.51, 3.21)