

## Worksheet 7

1. Forty people are randomly selected from a certain town. If their mean age is 85.1 with a standard deviation,  $\sigma$ , of 4.5, find a 95 percent confidence interval for the true mean age,  $\mu$ , of the town's population.
2. Find a 95% confidence interval for the mean IQ score of professional athletes if  $n=25$ , the sample mean is 104, and  $s=12$ . Assume the scores are normally distributed.
3. Among 785 randomly selected subjects who completed four years of college, 18.3% smoke. Construct the 98% confidence interval for the true percentage of smokers among all people who completed four years of college. Based on your result, does the smoking rate for those with four years of college appear to be substantially different from the 27% rate for the general population?
4. A chicken farmer claims that her chickens have a mean weight greater than 58 ounces. The farmer takes a random sample of 36 chickens and finds a mean weight of 59.2 ounces and knows the standard deviation,  $\sigma$ , is 3.0 ounces. If you wish to conduct a hypothesis test to test the farmer's claim, what would be the value of the test statistic?