

1. A researcher conducts a small random sample of 20 grocery stores across the United States and asks the produce manager for the current price charged for a head of iceberg lettuce. Using the following results, construct a 95% confidence interval to estimate the price of lettuce.

1.59 1.25 1.65 1.40 0.89 1.19 1.50 1.49 1.30 1.39  
1.29 1.60 0.99 1.29 1.19 1.20 1.50 1.49 1.29 1.35

2. According to a recent survey of 81 fast food establishments in Denver the average cost of a fast-food meal (cheeseburger, french fries and a medium size soft drink) is \$4.62 with a sample standard deviation of \$0.57. Construct a 95% confidence interval to estimate the average price of a fast-food meal in Denver.
3. Researchers found the average urban U.S. resident consumes 3.3 pounds of food per day but they're not sure if the same figure applies to rural U.S. residents. Suppose 64 rural U.S. residents are identified by a random procedure and their average food consumption per day is 3.6 pounds with standard deviation of 1.14 pounds of food per day. Use a 5% level of significance to test the hypothesis that food consumption for urban U.S. residents is the same for rural U.S. residents based on the sample data.
4. A random sample of 40 apartment tenants in Pueblo finds an average rent of \$719 and a standard deviation of \$179. Assume rents are normally distributed. Construct a 95% confidence interval to estimate average rent in Pueblo.
5. Construct 95% confidence intervals for the following data.
  - a.  $\bar{x} = 110$ ,  $s = 35$ ,  $n = 700$
  - b.  $\bar{x} = 4.7$ ,  $s = 1.2$ ,  $n = 350$
  - c.  $\hat{p} = .36$ ,  $n = 200$
6. Conduct these hypothesis tests. Use  $\alpha=0.05$ .
  - a.  $H_0: \mu = 57$ ,  $H_a: \mu \neq 57$ ;  $\bar{x} = 55$ ,  $s = 8$ , and  $n=100$ .
  - b.  $H_0: \mu = 25$ ,  $H_a: \mu < 25$ ;  $\bar{x} = 23$ ,  $s = 3$ , and  $n=40$ .
  - c.  $H_0: p_0 = 0.52$ ,  $H_a: p_0 > 0.52$ ,  $\hat{p} = .57$  and  $n = 60$ .