**Measures of Central Tendency**

**Section 10.2**

***Find the mean for each data set. Round to the nearest tenth.***

**2. Starting teaching salaries (US Dollars):**

**$38,400, $39,720, $28, 458, $29,679, $33, 679**

***Find the mean of each distribution. Round to the nearest tenth.***

**6. Scores on a quiz, on a scale from 0 to 10:**

**Value Frequency**

**7 4**

**8 6**

**9 7**

**10 11**

***Find the mode or modes for each of the given list of numbers.***

**16. Ages (years) of children in a day-care facility.**

**1,2,2,1,2,2,1,1,2,2,3,4,2,3,4,2,3,2,3**

**26. *The following table gives the value (in millions of dollars) of the 10 most values baseball teams as estimated by Forbes in 2007.***

**Rank Team Value**

|  |  |  |
| --- | --- | --- |
| **1** | **New York Yankees** | **1306** |
| **2** | **New York Mets** | **824** |
| **3** | **Boston Red Sox** | **816** |
| **4** | **Los Angeles Dodgers** | **694** |
| **5** | **Chicago Cubs** | **642** |
| **6** | **Los Angeles Angels of Anaheim** | **500** |
| **7** | **Atlanta Braves** | **497** |
| **8** | **San Francisco Giants** | **494** |
| **9** | **St. Louis Cardinals** | **484** |
| **10** | **Philadelphia Phillies** | **481** |

1. **Find the mean value of these teams.**
2. **Find the median value of these teams.**
3. **What might account for the difference between these values?**

**Section 10.3**

**Measures of Variation**

***Expenditures (in millions of dollars) for various government services in 2005 are given are given for the five largest counties in the United States by population: Los Angeles, CA; Cook, IL; Harris, TX; Maricopa, AZ; and Orange, CA.***

***Find the range and the standard deviation for each given category.***

**10. Parks and Recreation: 227, 112, 26, 7, 1**

***Find the standard deviation for the grouped data in question 12.***

**12. Scores on a calculus exam:**

**Scores Frequency**

|  |  |
| --- | --- |
| **30-39** | **1** |
| **40-49** | **6** |
| **50-59** | **13** |
| **60-69** | **22** |
| **70-79** | **17** |
| **80-89** | **13** |
| **90-99** | **8** |

**14. *An assembly-line machine turns out washers with the following thickness (in millimeters)***

***Find the mean and standard deviation of these thicknesses.***

**1.20 1.01 1.25 2.20 2.58 2.19 1.29 1.15**

**2.05 1.46 1.90 2.03 2.13 1.86 1.65 2.27**

**1.64 2.19 2.25 2.08 1.96 1.83 1.17 2.24**

**30. *The Quaker Oats Company conducted a survey to determine whether a proposed premium, to be included with purchases of the firm’s cereal, was appealing enough to generate new sales. Four cities were used as test markets, where the cereal was distributed with the premium, and four cities were used as controlled markets, where the cereal was distributed without the premium. The eight cities were chosen on the basis of their similarity in terms of population, per-capita income, and total cereal purchase volume. The results were as follows:***

|  |  |  |
| --- | --- | --- |
|  |  | **Percent Change in Average Market Shares per Month** |
| **Test Cities** | **1****2****3****4** | **+18****+15****+7****+10** |
| **Control Cities** | **1****2****3****4** | **+1****-8****-5****0** |

1. **Find the mean of the change in market share for the four cities.**
2. **Find the mean of the change in market share for the four control cities.**
3. **Find the standard deviation of the change in market share for the test cities.**
4. **Find the standard deviation of the change in market share in control cities.**
5. **Find the difference between the mean of part (a) and the mean of part (b). This represents the estimate of the percent change in sales due to the premium.**
6. **The two standard deviations from part (c) and part (d) were used to calculate an “error” of** $\pm 7.95$ **for the estimate in part (e). With the amount of error, what is the smallest and largest estimate of the increase in sales? (Hint: Use the answer to part (e)).**

**On the basis of the results f the exercise the company decided to mass-produce the premium and distribute it nationally.**