Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**One Variable Statistics**

**Outliers in Data Sets**

**Independent Practice**

1. Identify the outliers (if any) in the following data sets. Remember that outliers are defined as being at least 1.5 times the IQR away from the median.
   1. 12, 27, 19, 38, 14, 15, 19, 27, 19, 14 **(IQR is 13)**
   2. 12, 13, 2, 8, 9, 21, 16, 14, 14, 6, 9, 12, 12 **(IQR is 5.5)**
   3. 35, 60, 20, 80, 95, 7, 40, 85, 75 **(IQR is 55)**

**The table below lists the top ten most populated cities in 2014. Use the table to answer the questions on the next page.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rank** | **City\*** | **Population 2014** |  |
| 1 | Tokyo, Japan | 37,833,000 |  |
| 2 | Delhi, India | 24,953,000 |  |
| 3 | Shanghai, China | 22,991,000 |  |
| 4 | Mexico City, Mexico | 20,843,000 |  |
| 5 | São Paulo, Brazil | 20,831,000 |  |
| 6 | Mumbai, India | 20,741,000 |  |
| 7 | Osaka, Japan | 20,123,000 |  |
| 8 | Beijing, China | 19,520,000 |  |
| 9 | New York/Newark, United States | 18,591,000 |  |
| 10 | Cairo, Egypt | 18,419,000 |  |

1. What value would you predict to be an outlier? Why?

1. How does the outlier affect the mean?
2. How does the outlier affect the median?
3. Which measure of center would best describe the data- the mean or the median? Why?
4. How does the outlier affect the standard deviation?
5. How does the outlier affect the interquartile range?
6. Which measure of spread would best describe the data-the standard deviation or the interquartile range? Why?