Effects of An Outlier                   Name:_____Date_____

    a)   Circle the outlier in each problem below.
    b)   Determine the mean, median, mode, and range of the data set ***without*** the outlier.
    c)   Determine the mean, median, mode, and range of the data set ***with*** the outlier.
    d)   Describe the effect the outlier has on the mean, median, mode, and range.

1.       3, 2, 6, 4, 3, 5, 16

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean |  |  |
| Median |  |  |
| Mode |  |  |
| Range |  |  |

Effect:

2.       20, 17, 19, 22, 18, 17, 5

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean |  |  |
| Median |  |  |
| Mode |  |  |
| Range |  |  |

Effect:

3.       42, 38, 45, 68, 40, 39, 39, 41,

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean |  |  |
| Median |  |  |
| Mode |  |  |
| Range |  |  |

Effect:

3.       12, 24, 12, 15, 9, 11, 10, 13

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean |  |  |
| Median |  |  |
| Mode |  |  |
| Range |  |  |

Effect:

5.       4, 2, 8, 5, 6, 20, 7, 9,

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean |  |  |
| Median |  |  |
| Mode |  |  |
| Range |  |  |

Effect:

6.       105, 98, 101, 100, 99, 89, 40, 98

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean |  |  |
| Median |  |  |
| Mode |  |  |
| Range |  |  |

Effect:

Effects of An Outlier          Name:_____**KEY**_____Date_____

a) Circle the outlier in each problem below.
b) Determine the mean, median, mode, and range of the data set ***without*** the outlier.
c) Determine the mean, median, mode, and range of the data set ***with*** the outlier.
d) Describe the effect the outlier has on the mean, median, mode, and range.

1.    3, 2, 6, 4, 3, 5, (16)

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean | **3.8** | **5.6** |
| Median | **3.5** | **4** |
| Mode | **3** | **3** |
| Range | **4** | **14** |

Effect:  **with outlier:  mean increased, median increased, mode remained unchanged, range increased**

2.    20, 17, 19, 22, 18, 17, (5)

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean | **18.8** | **16.9** |
| Median | **18.5** | **18** |
| Mode | **17** | **17** |
| Range | **5** | **17** |

Effect:  **with outlier:  mean decreased, median decreased, mode remained unchanged, range increased**

3.    42, 38, 45, (68) 40, 39, 39, 41,

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean | **40.6** | **44** |
| Median | **40** | **40.5** |
| Mode | **39** | **39** |
| Range | **7** | **30** |

Effect:  **with outlier:  mean increased, median increased, mode remained unchanged, range increased**

3.    12, (24) 12, 15, 9, 11, 10, 13

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean | **11.7** | **13.3** |
| Median | **12** | **12** |
| Mode | **12** | **12** |
| Range | **6** | **15** |

Effect:  **with outlier:  mean increased, median remained unchanged, mode remained unchanged, range increased**

5.    4, 2, 8, 5, 6, (20) 7, 9,

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean | **5.9** | **7.6** |
| Median | **6** | **6.5** |
| Mode | **none** | **none** |
| Range | **7** | **18** |

Effect:  **with outlier:  mean increased, median increased, mode remained unchanged, range increased**

6.    105, 98, 101, 100, 99, 89, (40) 98

|  | Without Outlier | With Outlier |
|---|---|---|
| Mean | **98.6** | **91.3** |
| Median | **99** | **98.5** |
| Mode | **98** | **98** |
| Range | **16** | **65** |

Effect:  **with outlier:  mean increased, median increased, mode remained unchanged, range increased**