

Effects of An Outlier

Circle the outlier in each problem below. Then calculate each measure without the outlier and with the outlier. Describe the effect the outlier has on each measure. Which measure was affected the most? Which the least

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

	Without Outlier	With Outlier	Effect
Mean	3.8	5.6	+1.8
Median	3.5	4	+0.5
Mode	3	3	same
Range	4	14	+10
IQR	2	3	+1
St Dev	1.47	4.8	+3.3
Direction Skewed?	XXX	XXX	right

2, 3, 3, 4, 5, 6, 16

 $\bar{x}$
mean2, 3 | 3, 4, 5, 6
3.5

max-min

 $Q_3 - Q_1$ S_x

most: st dev least: Median

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

	Without Outlier	With Outlier	Effect
Mean	18.8	16.9	-1.9
Median	18.5	18	-0.5
Mode	17	17	same
Range	5	17	+12
IQR	3	3	same
St Dev	1.9	5.5	+3.6
Direction Skewed?	XXX	XXX	left

most: std dev least IQR

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

	Without Outlier	With Outlier	Effect
Mean	40.6	44	+3.6
Median	40	40.5	+0.5
Mode	39	39	same
Range	7	30	+21
IQR	3	4.5	+1.5
St Dev	2.4	9.9	+7.5
Direction Skewed?	XXX	XXX	right

most: std dev
least Median