

- 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:

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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

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 increased, median increased, mode remained unchanged, range increased**

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

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 increased, mode remained unchanged, range increased**

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

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**

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