

Challenging: Mean, Median, Mode and Range with Outliers

1. For each of the below, calculate the:

i. Mean

iii. Mode

ii. Median

iv. Range

2. Identify the outlier in each data set.

3. Exclude the outlier from each set and recalculate:

i. Mean

iii. Mode

ii. Median

iv. Range

a. 2.5, -1.2, 3.8, 2.4, -4.5, 2.6, 90.3

f. 14, 15, 13.5, 16, 14.2, 13.8, 77

b. 10, 9.5, 10, 11, 10.5, 10, 48

g. -5, -7, -3, -4, -6, -8, -35

c. -3, -1, -4, -2, -1, -3, -25, -2

h. 5, 4, 6, 5, 5, 30, 6, 5.5

d. 8.5, 7.9, 9.1, 8.2, 8.3, 7.8, 50.4

i. 20, 18, 17, 19, 21, 35, 20, 19

e. 0.6, 1.1, -0.3, 2, 1.2, 0.5, -7.8

j. 3, 2.5, 3.5, 2, 3, 2.8, 3.2, 44.9

4. Does the range always get smaller when you exclude the outlier? Explain your reasoning.

5. In which questions did removing the outlier have the biggest effect on the:

a. Mean? Why?

c. Mode? Why?

b. Median? Why?

d. Range? Why?

6. Which measure (mean, median, mode, range) do you think is the most reliable when there are outliers? Explain your reasoning.