DATA SET 3: Gross Domestic Product (GDP) of the 10 wealthiest countries

- Record the name of each country and the GDP
- Report the GDP in billions. For example (United States), $11,667,515,000,000.00 would be 11,667 billion dollars. For another example (Spain), $991,442,000,000.00 would be 991 billion dollars

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<tr>
<th>Country</th>
<th>GDP (in billions of dollars)</th>
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- Which country is an outlier in the data? ________________________________
- What is the GDP of that country? ________________________________

CALCULATIONS:

Calculate the mean and median for the GDP, but DO NOT include the outlier in your calculations. Show your work below.

Mean

Mean =

Median

Median =
Now, recalculate the mean and median for the GDP, but this time **INCLUDE** the outlier in your calculations. Show your work below.

**Mean**

[Mean = ]

**Median**

[Median = ]

**SUPPORTING QUESTIONS:**

Answer all supporting questions in complete sentences and justify your answers by referring back to your calculations.

1) Look at your calculations for the mean and median when you **DID NOT** include the outlier.
   - How many countries had a GDP less than the mean GDP? _________
   - How many countries had a GDP greater than the mean GDP? _________
   - How many countries had a GDP less than the median GDP? _________
   - How many countries had a GDP greater than the median GDP? _________

2) Look at your calculations for the mean and median when you **DID** include the outlier.
   - How many countries had a GDP less than the mean GDP? _________
   - How many countries had a GDP greater than the mean GDP? _________
   - How many countries had a GDP less than the median GDP? _________
   - How many countries had a GDP greater than the median GDP? _________

3) Look at your answers for questions #1 and #2. When the GDP of the United States is included in the calculations, which measure of central tendency (mean or median) most accurately represents the GDP of a **TYPICAL** country in the top ten?

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CONCLUDING QUESTIONS:

Now that you have examined three sets of data you are ready to make some general conclusions. Answer each question in complete sentences and justify your answer by referring back to calculations you made with the data sets.

1) When there is an outlier in a data set, how is the value of the mean affected? How is the value of the median affected? Does the outlier have a greater affect on the mean or the median? Remember to justify your answer with examples from your calculations.

BONUS: In all our data sets the outlier was significantly higher than the rest of the data points. An outlier can also be a data point that is significantly lower than the rest of the data. How do you think that an outlier that is lower than the rest of the data will affect the mean? How will it affect the median?