**How many Colleges Do You**

 **Think You Might Apply To?**

**IB Math Day 6**

How many different colleges is your group of 4 applying to? Find the total number of colleges for your whole group. *Don’t double count the same college*

1. Record the data for the class here. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Finding Quartiles**

2. List these values below in order from least to greatest. Find the median of the data by hand (not with a GDC). Draw a line in the data set to mark this and write in the median value. You have now split the data set into two halves

3. The range is somewhat helpful to indicate how spread out the data is but does not tell us how much all of the data is spread out. The IQR is a little better for that. Now go back to your diagram above find $Q\_{1}$and $Q\_{3}$ the same way, by drawing lines. Then calculate the IQR = \_\_\_\_\_\_\_\_\_\_\_ Interpret, in context, the IQR.

**Finding Standard Deviation**

4. An even better way to measure variability in the data is with the standard deviation. How can we find the ***average distance of the values from the mean****?*

1. **Find the mean of the data (we’ll round)**
2. **Find the distance of each piece of data from the mean.**
3. **Square the differences to make them positive.**
4. **Find the “average”.**
5. **Square root to undo the squares.**

4. Enter the classroom data in your GDC and find the summary statistics. Verify our work above.

5. Finally, *interpret* our standard deviation, in context.

The standard deviation is the square root of the average of the squared deviations from normal. (normal being the *mean*)

Summarize - Measuring Variability

**Have we found the beef?**

Here are data on the amount of fat (in grams) in 12 different McDonald’s sandwiches, along with a dotplot. The mean fat content for these sandwiches is $\overbar{x}=22.833$ grams.

27 11 22 21 40 8 17 15 29 31 27 26



1. Find the range of the distribution. \_\_\_\_\_\_\_\_\_\_\_\_

2. Use your GDC to find the interquartile range. IQR = \_\_\_\_\_\_\_\_\_\_\_\_

3. Use your GDC to calculate the standard deviation. Interpret this value, in context.

4a. The dotplot suggests that the Bacon Clubhouse Burger, with its 40 grams of fat, is a possible outlier. Recalculate the range, interquartile range, and standard deviation for the other 11 sandwiches.

4b Compare these values with the ones you obtained in Questions 1 through 3.

 Explain why each result makes sense.