Developing Metric/English Conversion Factors - Volume

Name_____ Block ____

Partner: _____

Measuring Cup	Volume in fluid ounces	Volume in ml	Volume in ml ÷ Volume in fluid ounces
1/8 cup			
1/4 cup			
1/3 cup			
1/2 cup			
1 cup	**8**		
Total of all 5 measurements			
Average = Total ÷ 5			

1. Using the fact that there are 8 fluid ounces in one cup, compute the number of fluid ounces for each other measuring cups and fill in column 2. Note: not all are integers!

2. Fill each cup <u>to the brim</u> with water and carefully pour it into a graduated cylinder. Record the number of milliliters for each in column 3.

3. Total columns 2 and 3 (only!) in the row indicated.

4. Compute the average of columns 2 and 3 in the row indicated by dividing the total by 5.

5. For each line, divide its volume in milliliters by its volume in fluid ounces, and put the result in the last column. Don't forget the units!

Analysis:

1. What is the result when you divide the average volume in milliliters by the average volume in fluid ounces? Show your work below.

2. What are the units on your answer to #1?

3. What is the result when you divide the average volume in fluid ounces by the average volume in milliliters? Show your work below.

4. What are the units on your answer to #3?

5. Carefully applying our principles, create a graph of your <u>measurements</u> (not your average or totals!) Put fluid ounces on the horizontal axis, and milliliters on the vertical axis.

6. Using a ruler, draw a straight "trend line" that:
    a. goes through as many of your points as possible, and
    b. has as many points below it as above it.

5. Does your trend line go through the origin? Should it? Why or why not?

6. For every one fluid ounce you go over, how many milliliters does your trend line rise?

7. What is the mathematical name for this relationship?

8. Using your data from above, and the fact there are 128 fluid ounces in a gallon, how many liters are in a gallon?   Show your work!