Twenty-eight people were surveyed regarding how many hours they spend watching television per day. The results are as follows (in hours):

1	2	4	3.5	5	2.5	1.5
2	3	5	4	6	2	2
1	7.5	0.5	1	2	3	4
3	3	3.5	2	1	5	4.5

Calculate the standard deviation for the data set.

STOP! This will take way too long…

<u>**Calculating Standard Deviation Class Work (Day 2)**</u>

✍ **Objective:** You will be able to calculate and interpret the standard deviation of a given data set.

☆ Thankfully, the graphing calculator can be an efficient tool to help you calculate standard deviation! Simply follow the steps listed below to calculate the standard deviation of any applicable data set. ☺

- Press the "**STAT**" button (statistics)
- Choose **EDIT: 1. Edit** and press enter. This will allow you to create a list of all of the values in the data set for the calculator to read.
- **Enter the values of the data set in L1**. Make sure that the list is clear before doing so, and ensure that you are precise when entering the values.
- Press the statistics button again (**STAT**)
- Choose **CALC: 1. 1-Var Stats** to calculate the one-variable statistics of the data you entered. Press Enter twice
- You should see the **sigma** symbol, which indicates the value of the standard deviation! ☺ Also note that all of the calculations you could have performed by hand are listed for you as well, along with the number of elements in the data set (n).

✎ *Let's Revisit That Problem From the Do Now:*

Twenty-eight people were surveyed regarding how many hours they spend watching television per day. The results are as follows (in hours):

1	2	4	3.5	5	2.5	1.5
2	3	5	4	6	2	2
1	7.5	0.5	1	2	3	4
3	3	3.5	2	1	5	4.5

Calculate the standard deviation for the data set.

~ How many values fall within one standard deviation of the mean?

~ How many fall within two standard deviations?

~ How many fall within three standard deviations?

~ Would you consider this set "normally distributed?"
Remember in a normal distribution, 99.7% of the values should fall within 3s.

2. a. Two disc jockeys recently played live sets. Throughout their set, the DJs did not play each song for their entire lengths, but rather for a portion of them. The length of time each song was played for is recorded below. Determine the standard deviation for each set.

First DJ (amount of time each song was played for – in minutes)

7.55	4.32	5.5	7.23	8.23	4.33
6.25	6	4.34	3.22	6.28	6.8

Second DJ (amount of time each song was played for – in minutes)

4.55	3.85	5.90	6.18	6	5
4	3.12	3.28	7.8	5.43	5.12

b. Based solely on this information alone, whose set would you expect to have been more consistent? Explain.

3. A machine is used to fill juice bottles. To test that the machine is working correctly, the amount of milliliters in twenty of each type of juice bottles was measured and recorded.

Orange Juice (mL)

578	583	591	597
590	582	577	590
585	595	593	587
591	569	574	588
589	580	587	572

Grapefruit Juice (mL)

595	585	580	590
578	585	591	585
568	583	588	591
590	590	578	592
595	591	587	593

a. Determine the mean and standard deviation for each type of juice.
b. How many bottles fall within one standard deviation of the mean for each type of juice?
c. For which juice is the machine working more consistently?
d. For which type of juice does the data seem to be more normally distributed? Support your reasoning.