Linear Transformation:
- Adding the constant, a,
- Multiplying by the positive constant, b,

Effect of Linear Transformations

To see the effect of a linear transformation (changing the unit of measurement) on measures of center and spread, let's use a simple set of student-generated data….time spent on your homework.

1. Open the Nspire document, Linear Transformations of Data.tns and read the directions on pages 1-6. Remember, (ctrl) and right arrow will move you through the Nspire document.

2. In your group, find out **how many minutes** you spent on your homework last night. Record your group's 4 values and then include the data from the group with the next highest group number from yours….this should give you 7-9 data values. Record on the back of this paper and enter in **minutes** list on page 7.

3. Display the data using a **dot plot** on the back of this paper. Also construct a histogram on the Nspire doc.

4. Find the **measures of center** (mean, median, mode) and **measures of spread** (standard deviation, IQR, range) for this data set. Also include one other measurement from your data (i.e. Q_1, Σx^2, maxX, outlier, etc.)

Measures of Center	Minutes	Seconds	Set-Up	Rule 5x + 60
Mean				
Median				
Mode				
Measures of Spread	**Minutes**	**Seconds**	**Set-Up**	**Rule 5x + 60**
Standard Deviation				
Interquartile Range				
Range				
Other measure:				

5. Read and follow the directions on the Nspire document. You will be completing the following adjustments to the original data set, **minutes**.

   a. Convert each of the original data **from minutes to seconds**.
   b. **Add five minutes** for "set-up" time to each of the original data.
   c. **Multiply and add** to a set of data. Use the rule: 5·x + 60 on your data. (This represents the minutes for the week plus constant week-end minutes.)

6. Summarize the results of a **linear transformation** on the measures of center and spread; that is, the effects of multiplying and/or adding. Use the back of the paper to write your answer.