

Chapter 3: Correlation Transformation Investigation

Using your graphing calculator calculate the following correlation coefficients:

1. Data regarding heights and weights of 16 year old males. Assume that a scatterplot shows that the data is roughly linear.

Height in feet	5.5	6.0	5.25	6.25	5.75	6.0	5.75	5.5	5.75
Weight in pounds	150	180	138	191	172	181	168	148	172

R^2	
R	

2. **Converting Units from Feet to Inches.** Upon further review of the data, it was determined that the heights should be reported in inches, because the decimals were confusing some of the researchers. Calculate the correlation of the converted data.

Height in Inches	66	72	63	75	69	72	69	66	69
Weight in pounds	150	180	138	191	172	181	168	148	172

	Recalibrated Measures	How did the values change from #1?
R^2		
R		

3. **Changes in X.** Apparently, the nurse was incompetent measuring the boys; each height was reported as two inches greater than actual height. Below are the new measures.

Height in inches	64	70	61	73	67	70	67	64	67
Weight in pounds	150	180	138	191	172	181	168	148	172

	Recalibrated Measures	How did the values change from #2?
R^2		
R		

4. Changes in Y. After some complaints, it was discovered that the scale was incorrect; each person is actually 5 pounds heavier than previously reported. (16 year old males tend to want to be heavier). Ignore the changes to height.

Height in Inches	66	72	63	75	69	72	69	66	69
Weight in pounds	155	185	143	196	177	186	173	153	177

	Recalibrated Measures	How did the values change from #2?
R^2		
R		

5. Based on your results above, complete the chart below.

	Changing Units What happened in #2?	Adding (Subtracting) a Constant to X What happened in #3?	Adding (Subtracting) a Constant to Y What happened in #4?
R^2			
R			

6. (Bonus): Do your results above make sense? Why or why not?