FUNCTIONS EXPERIMENT
WEIGHT VERSUS HEIGHT

Introduction
For adult males, weight is typically a linear function of height. The purpose of this experiment is to test that theory and to establish a relationship between height and weight of the adult males included in our study.

Procedure
Each student should collect the height and weight of at least 5 adult males and bring the data to class. We will combine the data into one large data set that will be transferred to one calculator in each group. The other group members should then transfer the data into their own calculators.

Data
Record the data you collected in the table below.

<table>
<thead>
<tr>
<th>Subject #1</th>
<th>Subject #2</th>
<th>Subject #3</th>
<th>Subject #4</th>
<th>Subject #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height in inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight in pounds</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Analysis
Complete this section using the large data set which results from combining all of the individual data sets from students.

1. Find the equation of the regression line model for weight as a function of height. Be sure to identify what the letters you use mean.

2. Identify the slope in your regression line, and explain what it means in practical terms.

3. How does your answer to Part 2 compare to the rule of thumb relating weight to height given in Exercise 11 of Section 3.2? What can you say about our test population compared to the test population used for the exercise in the text?
4. Graph the data and the regression line. Use the graph to support an answer to the following: Do you agree that weight is typically a linear function of height for adult males? Be sure to discuss this with your group before writing down a response. There are many ways to view the data.

5. Sally Sue is writing a research report for her physiology class. For her research she has collected the heights and weights of 100 different adult males. Now she needs to identify which adult males in her study have a typical weight for their height and which she should consider atypical. Sally Sue found a regression line for her data just as we did to establish a relationship between height and weight for the subjects included in her study. Explain to Sally Sue how she can use this to decide which males she should consider typical and which she should consider atypical.