Chapter 7.a - Scatterplots and Association

1) Test Handbacks and Corrections
2) Thoughts from Part I
3) Scatterplot Thoughts
4) Scatterplot Associations
5) Correlation Coefficient

Lingering Questions from Part I
Draw what you believe the scatterplot might look like for

a) Drug dosage and degree of pain relief

b) Calories consumed and weight loss
Draw what you believe the scatterplot might look like for

c) Hours of sleep and score on a test

\[
\text{Score} \quad \text{Sleep}
\]

Draw what you believe the scatterplot might look like for

d) Shoe size and grade point average

\[
\text{GPA} \quad \text{Shoe}
\]
Draw what you believe the scatterplot might look like for

e) Time for a mile run and age

\[ \text{Time} \quad \text{Age} \]

Draw what you believe the scatterplot might look like for

f) Age of car and cost of repairs

\[ \text{Cost} \quad \text{Age} \]
Scatterplots and Vocabulary

Association
- some way in which the variables are related
  - Direction
    - positive or negative
  - Form
    - linear or "other"
  - Strength
    - strong vs. weak

Consider outliers and their effect in all cases

Variables and their Roles

Response Variable (y)
- the variable of interest
- does not necessarily depend on the other

Explanatory or Predictor (x)
- the other variable
- does not "cause" the other variable
- doesn't really explain or predict anything
General Review of Calculating Correlation Coefficient (r)
- "average of the product of their deviations from a line of best fit"
- those deviations can be in either data or z-score format
- gives a good summary of direction and strength
- would be nice if you know how to calculate it, but almost always done by technology
- if sum of all the "averages" is 1, then all data are exactly on the "line"

Assignment (Due Monday, October 12)

1) Pg. 164, #3, 5, 7, 8-12

2) Test Corrections

3) Read Chapter 7, Pg. 150-152a
   - don't worry about remembering formulas,
   but try to understand them

4) Read TI-Tips on Pg. 155