CST 383: Intro to Data Science
Based on Dr. Glenn Bruns

Background knowledge quiz

1. Monday through Friday, I exercise for 30 minutes per day. Saturday and Sunday, I exercise for 60 minutes per day. On average, how many minutes do I exercise per day?

2. Which of the following expressions is equal to $\frac{x+1}{x}$?
   a) $1 + x$ b) $\frac{x+2}{x+1}$ c) $1 + \frac{1}{x}$

3. The formula for a line can be written $y = mx + b$. Also, two points determine a line. Suppose I have two points: x = 1, y = 3 and x = 2, y = -4.
   What is the value of b for the line defined by these two points?

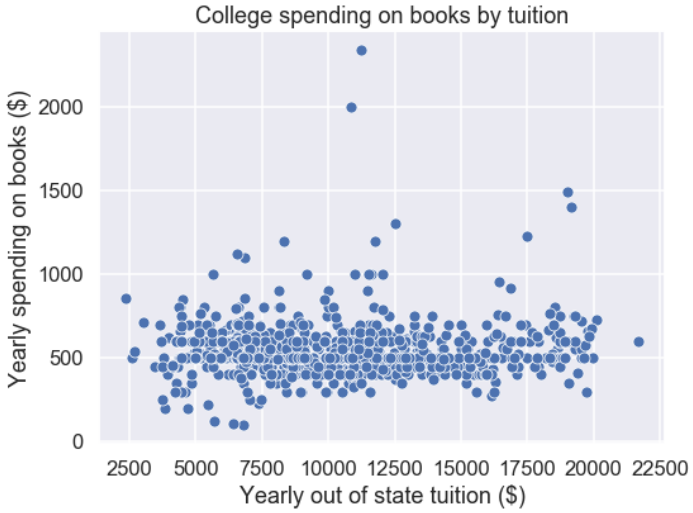
4. Referring to the same two points of the last problem, what is the distance between the points?

5. If you flip a "fair" coin then heads and tails are equally likely. With a fair coin, what is the probability of flipping it and getting heads?

6. What is the probability of flipping a fair coin three times and getting heads, then tails, then heads? Give your answer as a number between 0 and 1.

7. Suppose you have an unfair coin that gives heads on 3 of every 4 flips, on average. If you flip this coin twice, what is the probability of getting two heads?

8. The plot below shows student spending on books versus tuition cost. Each point in the plot represents one university. What do you think about the correlation between spending on books and tuition? a) there is little to no correlation, b) they are positively correlated, c) they are negatively correlated.



9. Write a Python expression that will concatenate string variables s1 and s2. For example, if s1 has value "foo", and s2 has value "bar", then the result of your expression should be "foobar".

10. Suppose we have 3 data points: $x_1 = 4, x_2 = 2, x_3 = 6$. Variable m stands for the number of data points. What is the value of the following expression?

$$\frac{1}{m}\sum_{i=1}^{m} x_i$$