CS381/780 Data Analytic Review Quiz 3

Instruction: For multiple choice questions, clearly circle one of the choice; for all other questions, write your answer right below the questions. All questions carry the same weights.

Name: Seth Marcus

Question 1: The household income distribution of a gated community should have a _____ standard deviation than a random sample of the whole population

   A. higher
   B. lower
   C. similar
   D. unknown

Question 2: The Graduation Rate distribution among different colleges should have a _____ kurtosis than the average height distribution among different colleges.

   A. higher
   B. lower
   C. similar
   D. unknown

Question 3: Given the following data sets

X	Y
2	5
3	6
8	10
-1	0
1	3

   A. Calculate the standard deviation of X and Y. Show your work.
   B. Calculate the covariance between X and Y. Show your work.

A. X: Mean = 2.6
   a. ((2-2.6)^2 + ... +(1-2.6)^2) / 5 = 9.04.
   b. Sqrt(9.04) = 3.007
   Y: Mean = 4.8
   c. ((5-4.8)^2+ ... + (3-4.8)^2)/5 = 10.96
   d. Sqrt(10.96) = 3.311
B.

$$\Sigma (x - M_x)(Y - M_y) = 48.6$$

I used a calculator.

$$r = \frac{48.6}{\sqrt{(45.2)(54.8)}} = 0.9765$$

$$\Sigma (Y - M_y)^2 = 54.8$$

$$\Sigma (x - M_x)^2 = 45.2$$