NAME:

BRONX COMMUNITY COLLEGE
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DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MTH23 **Quiz 2 Sample**

Instructions

Do all problems. If necessary, use additional paper to write your solutions. Label your answers clearly. You may use a single letter-size sheet of paper with notes and a calculator or laptop to help with calculations. Use the proper symbols for all statistics and parameeters.

1. (15 points) You are given these sample values of a random variable x:
   $\{6, 7, 7, 9, 9, 10, 10, 10, 12, 15, 21\}$.
   Calculate the mean, mode. and standard deviation.

2. (15 points) For the data in the previous problem, calculate the median, Q_1, and Q_3.

3. (20 points) You are given the following four ordered pairs of values of two random variables x and y:
   $(30, 40)$, $(20, 30)$, $(20, 10)$, and $(40, 40)$.
   Fill out a table of values for x and y, and the corresponding values for the expressions xy, x^2 and y^2.
   Calculate the totals for each column, including those for x and y.

4. (20 points) For the same data, write the formula for the correlation coefficient r. Then substitute the correct totals from your table in the previous problem and calculate r.

5. (10 points) Using r, what can you say about the correlation of x and y?

6. (10 points) For the same data, write the formula for, and find, the slope coefficient b in the linear regression equation for the least squares line, $\hat{y} = a + bx$ that best fits the data from the previous problem.

7. (10 points) Using the means of x and y, calculate a.