

Spring 2020 COT 3100 Section 2 Quiz #3 (Probability)

Directions: At the top of your own paper or a Word document, please write your name (first and last), COT 3100 Quiz 3, followed by your solutions to these three questions. Then, either upload a .pdf file or .doc or .docx file with your answers and ALL of your work, in Webcourses for THESE questions!!! Most of the credit will be for the work. No need to include the questions, but VERY CLEARLY mark the question numbers for which you are doing work.

Due Date/Time is Posted on Webcourses.

1) (8 pts) 5% of the population has gene X. Given that a person has gene X, they have a 70% probability of being able to memorize 12 random digits. Given that a person does NOT have gene X, they have a 40% probability of being able to memorize 12 random digits. A person is selected at random who CAN memorize 12 random digits. What is the probability she has gene X? Please show all the math necessary to solve this problem without a calculator, including all necessary fractions, multiplications, etc.

2) (7 pts) David's chance of making a free throw is 80%. In a game, he takes 10 free throws. What is the probability he makes 8 or fewer free throws out of the 10? Please leave your answer in combinations, products powers and sums. Please try to make your expression reasonably succinct.

3) (10 pts) A permutation of the word MESSENGER is chosen at random. What is the probability that this permutation has the substring "SS" AND the substring "EE"?