

Fall 2017 COT 3100 Section 1 Quiz #3 (Second Quiz that counts)

Dates: 11/13/17 - 11/17/17

Directions: Please put a box around each of your final answers

Name: _____

Lab Section: 18-T12 20-T1 22-T2 19-R12 21-R1 23-R2 24-F3:30

1) (6 pts) Die A is a fair standard six-sided die with sides labeled with each integer in between 1 and 6, inclusive. Die B is a fair eight-sided die with sides labeled with each integer in between 1 and 8, inclusive. Both dice are rolled and the sum of the labels of the two dice showing up is recorded. Let p_x be the probability that this sum is equal to x . What is the maximum value of p_x , for any x ? For which values of x is this maximum achieved?

2) (6 pts) .5% of high school students are National Merit Scholars. A student's SAT score is a fairly reasonable proxy for determining which students are National Merit Scholars. Given that a student is a National Merit Scholar, her chance of getting 1400 or more on the SAT is 99%. Given that a student is NOT a National Merit Scholar, her chance of getting less than 1400 on the SAT is 96%. A randomly chosen student has an SAT score of 1400 or higher. What is the probability that student is a National Merit Scholar?

3) (6 pts) A committee of 5 people is chosen from a group of 70, where 43 are men and 27 are women. What is the probability the committee has at least one woman? (Please write your answer using combinations and do NOT try to get a numerical answer.)

4) (7 pts) Find the expectation and variance of the following Discrete Random Variable. Please express your final answers as decimals. If you use your calculator, please write out exactly what you're typing into it.

X = 2, with probability .3
5, with probability .2
9, with probability .1
15, with probability .4