

COT 3100 Fall 2020 Homework #8
Please Consult WebCourses for the due date/time

- 1) (6 pts) Rolling two four-sided dice, what's the likelihood of getting the same sum twice in a row?
- 2) (6 pts) Rolling three four-sided dice, what is the probability of totaling at least 9?
- 3) (6 pts) Rolling three four-sided dice twice, what is the probability of the second total being larger than the first?
- 4) (8 pts) The Tauroto region contains 31 different species of IceCream-type small monsters. Each capture of an IceCream-type small monster has an equal chance of being any of the 31 species.
 - a) If a collector captures five of these small monsters, what is the probability that they have captured at least two small monsters of the same species?
 - b) What is the lowest number of IceCream-type small monsters that a collector must capture to make capturing at least two of the same species more likely than not?
- 5) (5 pts) The Knightrola Lottery has been updated to allow choosing 6 numbers out of 63 on a \$1 ticket.
 - a) Choosing 3 numbers correctly gives a \$10 prize.
 - b) Choosing 4 numbers correctly gives a \$50 prize.
 - c) Choosing 5 numbers correctly gives a \$5,000 prize.If the Lottery expects to **precisely break even**, how much is its prize for getting all 6 numbers correct?
- 6) (6 pts) Let A and B be events such that $p(B | A) = .8$, $p(\bar{B} | \bar{A}) = .4$, and $p(B) = .62$. What is $p(A)$?
- 7) (8 pts) Arup's class roll has 30 students listed in alphabetical order. Exactly 5 of those students received As in the course. What is the probability that at least two people who were adjacent on the alphabetical list both received As?
- 8) (5 pts) Give a summary of mathematician Melanie Wood's life and professional accomplishments, thus far. Please aim for a length of roughly 200 - 400 words. **Your summary must be typed.** Please state the sources you used in writing your summary.