

MA 416 - PROBABILITY

REVIEW PROBLEMS - MIDTERM

Problem 1. [Ross 9th, Chapter 1, Problem 31]. If 8 identical blackboards are to be divided among 4 schools, how many divisions are possible? How many if each school must receive at least 1 blackboard?

Problem 2. [Ross 9th, Chapter 2, Problem 15]. In a poker game, what is the probability of being dealt two pairs?

Problem 3. We have two classes of people: those who are accident prone and those who are not. Accident prone people have a probability .4 of accident in a one-year period. Those who are not accident prone have a probability .2 of accident in a one-year period. 30% of the population is accident prone. What is the probability that a new policyholder will have an accident within her/his second year of purchasing a policy if we know she/he had an accident in his first year?

Problem 4. We draw 5 t-shirts in a very large lot. There are 3 sizes of t-shirts (say 1,2 and 3), each one with equal probability. We call S_i the event that we get at least one t-shirt of size i . Find $\mathbf{P}(A_1 \cup A_2)$. Compute $\mathbf{P}(A_1 A_2)$.

Problem 5. [Ross 9th, Chapter 3, Problem 74]. A and B alternate rolling a pair of dice, stopping either when A rolls the sum 9 or when B rolls the sum 6. Assuming that A rolls first, find the probability that the final roll is made by A .