

Math 262

Section 1.3

Day 3

1. Minnesota issues license plates that consist of three numbers followed by three letters; for example: 012-ABC. How many different license plates of this form are possible?
2. How many different 4-letter codes can be made from the letters in the word *PADLOCKS*, if no letter can be chosen more than once? How about 6-letter codes from the letters in *DOGWATCHES*?
3. In a certain lottery, players select six numbers from 1 to n . For each drawing, balls numbered 1 to n are placed in a hopper, and six balls are drawn at random and without replacement. To win, a player's numbers must match those on the balls, in any order.
 - (a) If $n = 15$, how many combinations of winning numbers are possible?
 - (b) If $n = 24$, how many combinations of winning numbers are possible?
 - (c) If $n = 24$, what is the probability that the six balls that are drawn contain only numbers less than 16?
 - (d) If $n = 24$, what is the probability that the ball numbered 8 is among the balls drawn?
4. An absent-minded secretary prepared five letters and envelopes addressed to five different people. Then the secretary placed the letters randomly in the envelopes. A match occurs if a letter and its envelope are addressed to the same person. What is the probability of the following events?
 - (a) All five letters and envelopes match.
 - (b) Exactly four of the five letters and envelopes match.
 - (c) **BONUS:** None of the letters and envelopes match.