

**Recitation 3**  
**February 15, 2005**

1. The weather on any given day can be sunny, cloudy, rainy, or snowy. Assume four sequential seasons (fall, winter, spring, summer), that a snowy day can happen only during the winter, that a rainy day cannot happen in the summer, and that each season has 90 days. What is the number of all possible distinct 360-day weather sequences (consecutive days)?
2. Problem 1.45, page 66 of text: The Birthday Problem. Consider  $n$  people who are attending a party. We assume that every person has an equal probability of being born on any day during the year, independently of everyone else, and ignore the additional complication presented by leap years (i.e. nobody is born on February 29). What is the probability that each person has a distinct birthday?
3. Problem 1.54, page 67 of text. We draw the top 7 cards from a well-shuffled standard 52-card deck. Find the probability that:
  - (a) The 7 cards include exactly 3 aces.
  - (b) The 7 cards include exactly 2 kings.
  - (c) The probability that the 7 cards include exactly 3 aces or exactly 2 kings.