

## Homework 7 Chapter 13 (Problems 1 to 5)

Due on October 20

Math 125 *Kovitz* Fall 2025

1. Two tickets are drawn at random without replacement from the box

$$\boxed{\begin{array}{|c|c|c|c|} \hline 1 & 2 & 3 & 4 \\ \hline \end{array}}.$$

- (a) What is the chance that the second ticket is 4?  
(*Hint:* See example 2 (a) on pages 226 and 227.)
  - (b) What is the chance that the second ticket is 4, given the first is 2?
2. A deck of cards is shuffled and the top two cards are placed face down on a table. True or false, and explain:
- (a) There is 1 chance in 52 for the first card to be the ace of hearts.
  - (b) There is 1 chance in 52 for the second card to be the ace of spades.
  - (c) The chance of getting the ace of hearts and then the ace of spades is  $1/52 \times 1/52$ .
3. A coin is tossed four times.
- (a) What is the chance of getting 4 heads?
  - (b) What is the chance of not getting 4 heads?
  - (c) What is the chance of getting at least 1 tail?
  - (d) What is the chance of getting at least 1 head?
4. Every week, you buy a ticket in a lottery that offers one chance in a hundred of winning. What is the chance that you never win, even if you keep this for one hundred weeks (about two years)?
5. Three cards are dealt from a well-shuffled deck without replacement.
- (a) Find the chance that all of the cards are hearts.
  - (b) Find the chance that none of the cards are hearts.