Homework 7 Chapter 13 (Problems 1 to 5)

Due on March 26

Math 125 *Kovitz* Spring 2025

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

1	2	3	4

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   (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 five times.

   (a) What is the chance of getting 5 heads?

   (b) What is the chance of not getting 5 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 thousand of winning. What is the chance that you never win, even if you keep this for one thousand weeks (over nineteen 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.

   (c) Find the chance that the cards are not all hearts.