Chapter 14 Worksheet

1. A large group of people are competing for all-expense-paid weekends in Philadelphia. The Master of Ceremonies gives each contestant a well-shuffled deck of cards. The contestant deals two cards off the top of the deck, and wins a weekend in Philadelphia if the first card is the ace of hearts or the second card is the king of hearts.

(a) All the contestants whose first card was the ace of hearts are asked to step forward. What fraction of the contestants do so?

(b) The contestants return to their original places. Then, the ones who got the king of hearts for their second card are asked to step forward. What fraction of the contestants do so?

(c) Do any of the contestants step forward twice?

(d) True or false, and explain: the chance of winning a weekend in Philadelphia is $\frac{1}{52} + \frac{1}{52}$.

2. A large group of people are competing for all-expense-paid weekends in Philadelphia. The Master of Ceremonies gives each contestant a well-shuffled deck of cards. The contestant deals two cards off the top of the deck, and wins a weekend in Philadelphia if the first card is the ace of hearts or the second card is the ace of hearts. (This is like exercise 1, but the winning cards are a little different.)

(a) All the contestants whose first card was the ace of hearts are asked to step forward. What fraction of the contestants do so?

(b) The contestants return to their original places. Then, the ones who got the ace of hearts for their second card are asked to step forward. What fraction of the contestants do so?

(c) Do any of the contestants step forward twice?

(d) True or false, and explain: the chance of winning a weekend in Philadelphia is $\frac{1}{52} + \frac{1}{52}$. 
3. A box contains four tickets, one marked with a star, and the other three blank. Two draws are made at random with replacement from this box.

(a) What is the chance of getting a blank ticket on the first draw?

(b) What is the chance of getting a blank ticket on the second draw?

(c) What is the chance of getting a blank ticket on the first draw and a blank ticket on the second draw?

(d) What is the chance of not getting the star in the two draws?

(e) What is the chance of getting the star at least once in the two draws?

4. A pair of dice is rolled 36 times. What is the chance of getting at least one double-ace?