

Read each problem carefully before deciding whether the events are independent or dependent. If they are dependent then consider the conditional probability when solving.

1. You are using a standard deck of playing cards. Find the probability that you randomly draw a spade then you randomly draw a heart:
  - a. With replacement of the first card
  - b. Without replacement of the first card
  
2. You are using a standard deck of playing cards. You randomly select three cards from the deck one at a time. What is the probability that all three cards are Kings when:
  - a. You replace each card before the next draw.
  - b. You do not replace each card before the next draw.
  
3. You are drawing from a pile of socks that contains 4 white socks, 5 blue socks, and 11 red socks. You randomly draw two socks one at a time from the pile. Find the probability that both socks are blue when:
  - a. You replace the first sock before drawing the next sock.
  - b. You do not replace the first sock before drawing the next sock.
  
4. You roll two six-sided dice. Find the probability that on your first roll the sum is less than 12 and on the second roll the sum is 5.
  
  
5. You roll two six-sided dice. Find the probability that on your first roll the sum is 6 and on the second roll the sum is not 6.
  
  
6. You have a 5 question True or False quiz. What is the probability that by guessing you get all 5 questions correct?
  
  
7. Jill is tardy 90% of the time when it rains. There is a 60% chance of rain tomorrow. What is the prob that Jill will be tardy tomorrow?
  
  
8. a. Draw the sample space for tossing a coin and rolling one die.
  - b. Are these two events dependent or independent? Why?