

1. How many ways can you arrange the letters in  
CHATTANOOGA TENNESSEE  
so that no two vowels are next to each other?
2. Roll four dice. What is the probability that a 3 is the highest number shown?
3. A card game has 10-card hands. What is the probability you get four of one denomination and at least three of another?
4. A pile of cards consists of seven hearts and five diamonds. You draw 5 at random.
  - a) What is the probability you get at least 3 hearts?
  - b) What is the probability you get at least 3 hearts if you also have at least 1 diamond?
5. A marksman gets bullseyes on 85% of his shots. Suppose he shoots until he gets 15 bullseyes. What is the probability it takes him at most 18 shots?
6. Urn A has 9 red balls and 1 green one. Urn B has 3 red balls and 7 green ones.

Flip **four** coins. If you get **two** heads, draw from Urn A. Otherwise, draw from Urn B.

Then draw a second ball from the same urn without replacement.

  - a) If the first ball is red, what is the probability it came from Urn A?
  - b) If the first ball is red, what is the probability the second ball is red?