

1. Roll a pair of dice repeatedly until you get doubles five times. What is the expected number of rolls?
2. Pick a letter from  
MISSISSIPPI  
Put it back. Then keep drawing with replacement until you get the same letter again. What is the expected number of draws you make (including the first one)?
3. Find
  - a) the expected value
  - b) the variancefor the number of different denominations (face values) in a 7-card poker hand.
4. Find
  - a) the expected value
  - b) the variancefor the number of hearts in a 7-card poker hand.
5. An urn contains 10 balls each of 5 different colors. Draw 3 times with replacement. Find the
  - a) the expected value
  - b) the variancefor the number of different colors drawn.
6. A city gets a major earthquake about once every 7 years. What is the probability it will have
  - a) no major earthquakes
  - b) more than one major earthquakein 2001?