Homework on Discrete Probability

Problem 1. What is the probability that a card selected from a deck is an ace?

Problem 2. What is the probability that a die comes up six when it is rolled?

Problem 3. What is the probability that a randomly selected integer chosen from the first 100 positive integers is odd?

Problem 4. What is the probability that a randomly selected day of the year (from 366 possible days) is in April?

Problem 5. What is the probability that a coin lands heads up six times in a row?

Problem 6. What is the probability that a five-card poker hand contains
   a. exactly one ace?
   b. at least one ace?
   c. two pairs (that is, two of each of two different kinds and fifth card of a third kind)?
   d. a flush, that is, five cards of the same suit?
   e. a straight flush, that is, five cards of the same suit of consecutive kinds?

Problem 7. Find the probability of selecting none of the correct six integers, where the order these integers are selected does not matter, from the positive integers not exceeding a) 40, b) 48, c) 56, and d) 64.