Probability Worksheet #2

1. Two students are selected at random from a class of ten males and seven females. Find the probability that both students are males.

2. Two cards are drawn from a deck of cards and not replaced. Find the probability that both are aces.

3. There are twelve freshmen and nine sophomores in a class. If three students are selected at random, find the probability that two are freshmen and one is a sophomore.

4. A tray of electronic components contains 15 components, four of which are defective. If four components are selected, what is the probability that

   a. all four are defective
   b. three are defective and one is good
   c. exactly two are defective
   d. none are defective

5. Two people are selected at random from a group of twelve Republicans and ten Democrats. Find the probability that
   a. both are Democrats
   b. one is a Republican and one is a Democrat

6. A teacher writes 15 problems on cards, one per card. The problems include six easy problems, five medium problems, and four hard problems. A student draws three problems for a quiz. Find the probability that all three are hard problems.

7. A club has ten members and six pledges. Five of them are arranged in a row for a club meeting. The five are selected and seated at random.
   a. Find the probability that members are in seats 1 through 2 and pledges in seats 3 through 5
   b. Find the probability that members and pledges alternate seats with members in seats 1,3, 5 and pledges in seats 2 and 4.

8. A child has eight cans of soft drinks, four different brands with one regular and one diet drink for each brand. The child arranges four of the cans in a row in a random manner.
   a. Find the probability that the arrangement consists of all diet drinks.
   b. Find the probability that the first two are diet drinks and the second two are regular.

9. Fifteen cards are numbered 1 through 15. The cards are shuffled, and three cards are drawn and arranged in a row.
   a. Find the probability that all three are odd.
   b. Find the probability that the first two are odd and third is even.
   c. Find the probability that the arrangements consists of three cards larger than 10.