Extra Questions/Examples

Chapter 3 topics

1. How many ways can you choose three out of seven fiction books and two out of six nonfiction books to take with you on vacation? If instead you want to display the five chosen books on a shelf, how does the answer to the question change?

2. A box contains 8 red marbles, 4 black marbles, 10 white marbles, and 6 green marbles. Four of the marbles are taken out of the box at random.
    a. What is the probability that 2 of the marbles are red and two are green?

    b. What is the probability that all 4 marbles are green?

    c. What is the probability that no more than 2 of the marbles are red?

    d. What is the probability that at least 2 marbles are black and at least 1 marble is white?

3. Suppose that E and F are mutually exclusive events where P(E)=0.3 and P(F)=0.4. Find the probability that
    a. E does not occur.

    b. E and F occur.

    c. E or F occurs.

    d. E does not occur or F does not occur.

    e. Suppose it costs $5 for event E to occur and $2 for event F to occur what is the expected cost in this system?

4. Suppose two cards are selected at random from a standard deck of 52-cards.
    a. If one card is drawn and then replaced before the second card is drawn, what is the probability that both cards are less than 10 and neither is red?

    b. If one card is drawn and then not replaced before the second card is drawn, what is the probability that both cards are less than 10 and neither is red?

    c. If both cards are drawn at the same time, what is the probability that both cards are less than 10 and neither is red?

5. In 5-card poker (ie: 52 cards, 4 suits, 13 numbers), what is the probability of getting
    a. 3-of-a-kind? (ie: exactly 3 of the 5 cards must match in number.)

    b. a flush? (ie: all of the 5 cards must be from the same suit.)

    c. a full house? (ie: exactly 3 of the 5 cards must match in number and that the other 2 cards also match in number.)