Probability of Union of Two Events

Mutually Exclusive Events: events that have no outcome in common
Probability of Union of Mutually Exclusive Events: If A and B are mutually exclusive events, then

$$P(A \text{ or } B) = P(A \cup B) = P(A) + P(B)$$

Probability of Union of Two Events: If A and B are events in a sample space S, then the probability of A or B is

$$P(A \text{ or } B) = P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

Practice Exercises

Do as indicated.
1. Three coins are tossed. What is the probability of getting:
   a. three heads or three tails?
   b. one head or two tails?
   c. at least 2 heads?
2. A box contains 3 red balls, 4 green balls, and 5 blue balls. A ball is taken at random. What is the probability of getting:
   a. a red or a green ball?
   b. a red or a blue ball
   c. a green or a blue ball
3. A pair of dice is rolled. What is the probability of getting a sum of:
   a. seven or eleven?
   b. six or eight?
   c. less than three or greater than ten?
4. A card is drawn at random from a 52-deck of card. Find the probability of getting:
   a. a heart or an Ace of spade
   b. a spade or an ace
   c. a club or a face card

Problem Set

Do as indicated.
1. In a certain barrio, there are l8 children, 24 teenagers, 36 adults and 42 senior citizens. What is the probability that the individual you select is:
   a. a teenager or an adult?
   b. an adult or a senior citizen?
   c. a child or an adult?
2. A box contains slips of paper containing two-digit positive integers. A slip of paper is taken at random. What is the probability of each event?
   a. a perfect square or a perfect cube
   b. divisible by 5 or 10
   c. multiple of 5 or multiple of 7
3. A pair of dice is rolled. What is the probability of getting:
   a. a double or a sum less than 5?
   b. a sum of 5 or a sum greater than 4?
   c. less than 4 or greater than 9?
4. A card is drawn at random from a 52-deck of card. Find the probability of getting:
   a. a heart or a black card
   b. a club or an queen
   c. a diamond or a red card