

Chapter 2:

8. Suppose that A and B are mutually exclusive events for which $P(A) = .3$ and $P(\bar{B}) = .5$. What is the probability that
 - (a) either A or B occurs;
 - (b) A occurs but B does not;
 - (c) both A and B occur?
9. A retail establishment accepts either the American Express or the VISA credit card. A total of 24 percent of its customers carry an American Express card, 61 percent carry a VISA card, and 11 percent carry both. What percentage of its customers carry a credit card that the establishment will accept?
10. Sixty percent of the students at a certain school wear neither a ring nor a necklace. Twenty percent wear a ring and 30 percent wear a necklace. If one of the students is chosen randomly, what is the probability that this student is wearing
 - (a) a ring or a necklace;
 - (b) a ring and a necklace?
11. A total of 28 percent of American males smoke cigarettes, 7 percent smoke cigars, and 5 percent smoke both cigars and cigarettes.
 - (a) What percentage of males smoke neither cigars nor cigarettes?
 - (b) What percentage smoke cigars but not cigarettes?

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18. Two cards are randomly selected from an ordinary playing deck. What is the probability that they form a blackjack? That is, what is the probability that one of the cards is an ace and the other one is either a ten, a jack, a queen, or a king?
35. There are 30 psychiatrists and 24 psychologists attending a certain conference. Three of these 54 people are randomly chosen to take part in a panel discussion. What is the probability that at least one psychologist is chosen?
36. Two cards are chosen at random from a deck of 52 playing cards. What is the probability that they
- (a) are both aces;
 - (b) have the same value?
37. An instructor gives her class a set of 10 problems with the information that the final exam will consist of a random selection of 5 of them. If a student has figured out how to do 7 of the problems, what is the probability that he or she will answer correctly.
- (a) all 5 problems;
 - (b) at least 4 of the problems?
38. There are n socks, 3 of which are red, in a drawer. What is the value of n if when 2 of the socks are chosen randomly, the probability that they are both red is $\frac{1}{2}$?
39. There are 5 hotels in a certain town. If 3 people check into hotels in a day, what is the probability they each check into a different hotel? What assumptions are you making?
46. How many people have to be in a room in order that the probability that at least two of them celebrate their birthday in the same month is at least $\frac{1}{2}$? Assume that all possible monthly outcomes are equally likely.