1. Find the errors in each of the following statements:
2. The probabilities that an automobile salesperson will sell 0, 1, 2, or 3 cars on any given day in February are, respectively, 0.19, 0.38, 0.29, and 0.15.
3. The probability that it will rain tomorrow is 0.40 and the probability that it will not rain tomorrow is 0.52.
4. The probabilities that a printer will make 0, 1, 2, 3, or more mistakes in setting a document are respectively, 0.19, 0.34, −0.25, 0.43, and 0.29.
5. On a single draw from a deck of playing cards the probability or selecting a heart is ¼, the probability of selecting a black card is ½ , and the probability of selecting both a heart and a black card is 1/8.
6. A box contains 500 envelopes of which 75 contain $100 in cash, 150 contain $25, and 275 contain $10. An envelope may be purchased for $25. What is the sample space for the different amounts of money? Assign probabilities to the sample points and then find the probability that the first envelope purchased contains less than $100.
7. Suppose that in a senior college class of 500 students it is found that 210 smoke, 258 drink alcoholic beverages, 216 eat between meals, 122 smoke and drink alcoholic beverages, 83 eat between meals and drink alcoholic beverages, 97 smoke and eat between meals, and 52 engage in all three of these bad health practices. If a member of this senior class is selected at random, find the probability that the student
8. smokes but does not drink alcoholic beverages;
9. eats between meals and drinks alcoholic beverages but does not smoke;
10. neither smokes nor eats between meals.
11. The probability that an American industry will locate in Munich is 0.7, the probability that it will locate in Brussels is 0.4, and the probability that it will locate in either Munich or Brussels or both is 0.8. What is the probability that the industry will locate
12. in both cities?
13. in neither city?
14. From past experiences a stockbroker believes that under present economic conditions a customer will invest in tax-free bonds with a probability of 0.6, will invest in mutual funds with a probability of 0.3, and will invest in both tax-free bonds and mutual funds with a probability of 0.15. At this time, find the probability that a customer will invest
15. in either tax-free bonds or mutual funds;
16. in neither tax-free bonds nor mutual funds.
17. If a letter is chosen at random from the English alphabet, find the probability that the letter
18. is a vowel exclusive of y;
19. is listed somewhere ahead of the letter j;
20. is listed somewhere after the letter g.
21. An automobile manufacturer is concerned about a possible recall of their best-selling four-door sedan. If there were a recall, there is 0.25 probability that a defect is in the brake system, 0.18 in the transmission, 0.17 in the fuel system, and 0.40 in some other area.
22. What is the probability that the defect is the brakes or the fueling system if the probability of defects in both systems simultaneously is 0.15?
23. What is the probability that there are no defects in either the brakes or the fueling system?
24. If each coded item in a catalog begins with 3 distinct letters followed by 4 distinct nonzero digits, find the probability of randomly selecting one of these coded items with the first letter a vowel and the last digit even.
25. A pair of dice is tossed. Find the probability of getting
26. a total of 8;
27. at most a total of 5.
28. Two cards are drawn in succession from a deck without replacement. What is the probability that both cards are greater than 2 and less than 8?
29. If 3 books are picked at random from a shelf containing 5 novels, 3 books of poems, and a dictionary, what is the probability that
30. the dictionary is selected?
31. 2 novels and 1 book of poems are selected?
32. In a poker hand consisting of 5 cards, find the probability of holding
33. 3 aces;
34. 4 hearts and 1 club.
35. In a game of Yahtzee, where 5 dice are tossed simultaneously, find the probability of getting 4 of a kind.