

4. At a community swimming pool there are 2 managers, 8 lifeguards, 3 concession stand clerks, and 2 maintenance people. If a person is selected at random, find the probability that the person is either a lifeguard or a manager.
5. At a convention there are 7 mathematics instructors, 5 computer science instructors, 3 statistics instructors, and 4 science instructors. If an instructor is selected, find the probability of getting a science instructor or a math instructor.
6. A media rental store rented the following number of movie titles in each of these categories: 170 horror, 230 drama, 120 mystery, 310 romance, and 150 comedy. If a person selects a movie to rent, find the probability that it is a romance or a comedy. Is this event likely or unlikely to occur? Explain your answer.
7. A recent study of 200 nurses found that of 125 female nurses, 56 had bachelor's degrees; and of 75 male nurses, 34 had bachelor's degrees. If a nurse is selected at random, find the probability that the nurse is
  - a. A female nurse with a bachelor's degree
  - b. A male nurse
  - c. A male nurse with a bachelor's degree
  - d. Based on your answers to parts a, b, and c, explain which is most likely to occur. Explain why.
8. The probability that a student owns a car is 0.65, and the probability that a student owns a computer is 0.82. If the probability that a student owns both is 0.55, what is the probability that a given student owns neither a car nor a computer?
9. At a particular school with 200 male students, 58 play football, 40 play basketball, and 8 play both. What is the probability that a randomly selected male student plays neither sport?
10. A single card is drawn from a deck. Find the probability of selecting the following.
  - a. A 4 or a diamond
  - b. A club or a diamond
  - c. A jack or a black card
11. In a statistics class there are 18 juniors and 10 seniors; 6 of the seniors are females, and 12 of the juniors are males. If a student is selected at random, find the probability of selecting the following.
  - a. A junior or a female
  - b. A senior or a female
  - c. A junior or a senior
12. At a used-book sale, 100 books are adult books and 160 are children's books. Of the adult books, 70 are

nonfiction while 60 of the children's books are nonfiction. If a book is selected at random, find the probability that it is

- a. Fiction
- b. Not a children's nonfiction book
- c. An adult book or a children's nonfiction book

13. The Bargain Auto Mall has these cars in stock.

	SUV	Compact	Mid-sized
Foreign	20	50	20
Domestic	65	100	45

If a car is selected at random, find the probability that it is

- a. Domestic
- b. Foreign and mid-sized
- c. Domestic or an SUV

14. The numbers of endangered species for several groups are listed here.

	Mammals	Birds	Reptiles	Amphibians
United States	63	78	14	10
Foreign	251	175	64	8

If one endangered species is selected at random, find the probability that it is

- a. Found in the United States and is a bird
- b. Foreign or a mammal
- c. Warm-blooded

Source: *N.Y. Times Almanac*.

15. A grocery store employs cashiers, stock clerks, and deli personnel. The distribution of employees according to marital status is shown here.

Marital status	Cashiers	Stock clerks	Deli personnel
Married	8	12	3
Not married	5	15	2

If an employee is selected at random, find these probabilities.

- a. The employee is a stock clerk or married.
- b. The employee is not married.
- c. The employee is a cashier or is not married.

16. In a certain geographic region, newspapers are classified as being published daily morning, daily evening, and weekly. Some have a comics section and others do not. The distribution is shown here.

Have comics section	Morning	Evening	Weekly
Yes	2	3	1
No	3	4	2

If a newspaper is selected at random, find these probabilities.

- a. The newspaper is a weekly publication.
  - b. The newspaper is a daily morning publication or has comics.
  - c. The newspaper is published weekly or does not have comics.
17. Three cable channels (6, 8, and 10) have quiz shows, comedies, and dramas. The number of each is shown here.

Type of show	Channel 6	Channel 8	Channel 10
Quiz show	5	2	1
Comedy	3	2	8
Drama	4	4	2

If a show is selected at random, find these probabilities.

- a. The show is a quiz show, or it is shown on channel 8.
  - b. The show is a drama or a comedy.
  - c. The show is shown on channel 10, or it is a drama.
18. A local postal carrier distributes first-class letters, advertisements, and magazines. For a certain day, she distributed the following numbers of each type of item.

Delivered to	First-class letters	Ads	Magazines
Home	325	406	203
Business	732	1021	97

If an item of mail is selected at random, find these probabilities.

- a. The item went to a home.
  - b. The item was an ad, or it went to a business.
  - c. The item was a first-class letter, or it went to a home.
19. The frequency distribution shown here illustrates the number of medical tests conducted on 30 randomly selected emergency patients.

Number of tests performed	Number of patients
0	12
1	8
2	2
3	3
4 or more	5

If a patient is selected at random, find these probabilities.

- a. The patient has had exactly 2 tests done.
- b. The patient has had at least 2 tests done.

- c. The patient has had at most 3 tests done.
- d. The patient has had 3 or fewer tests done.
- e. The patient has had 1 or 2 tests done.

20. This distribution represents the length of time a patient spends in a hospital.

Days	Frequency
0-3	2
4-7	15
8-11	8
12-15	6
16+	9

If a patient is selected, find these probabilities.

- a. The patient spends 3 days or fewer in the hospital.
  - b. The patient spends fewer than 8 days in the hospital.
  - c. The patient spends 16 or more days in the hospital.
  - d. The patient spends a maximum of 11 days in the hospital.
21. A sales representative who visits customers at home finds she sells 0, 1, 2, 3, or 4 items according to the following frequency distribution.

Items sold	Frequency
0	8
1	10
2	3
3	2
4	1

Find the probability that she sells the following.

- a. Exactly 1 item
  - b. More than 2 items
  - c. At least 1 item
  - d. At most 3 items
22. A recent study of 300 patients found that of 100 alcoholic patients, 87 had elevated cholesterol levels, and of 200 nonalcoholic patients, 43 had elevated cholesterol levels. If a patient is selected at random, find the probability that the patient is the following.
- a. An alcoholic with elevated cholesterol level
  - b. A nonalcoholic
  - c. A nonalcoholic with nonelevated cholesterol level

23. If one card is drawn from an ordinary deck of cards, find the probability of getting the following.

- a. A king or a queen or a jack
- b. A club or a heart or a spade
- c. A king or a queen or a diamond
- d. An ace or a diamond or a heart
- e. A 9 or a 10 or a spade or a club