Examples

1. Registrants at a large convention are offered 6 sight-seeing tours on each of 3 days. In how many ways can a person arrange to go on a sightseeing tour planned by this convention?
2. In a medical study patients are classified in 8 ways according to whether they have blood type AB+, AB−, A+, A−, B+, B−, O+, or O−, and also according to whether their blood pressure is low, normal, or high. Find the number of ways in which a patient can be classified.
3. If an experiment consists of throwing a die and then drawing a letter at random from the English alphabet, how many points are in the sample space?
4. Students at a private liberal arts college are classified as being freshmen, sophomores, juniors, or seniors, and also according to whether they are male or female. Find the total number of possible classifications for the students of that college.
5. A certain shoe comes in 5 different styles with each style available in 4 distinct colors. If the store wishes to display pairs of these shoes showing all of its various styles and colors, how many different pairs would store have on display?
6. A California study concluded that by the following 7 simple health rules a man’s life can be extended by 11 years on the average and a woman’s life by 7 years. These 7 rules are: no smoking, regular exercise, use alcohol moderately, get 7 to 8 hours of sleep, maintain proper weight, eat breakfast, and do not eat between meals. In how many ways can a person adopt five of these rules to follow:
7. If the person presently violates all 7 rules?
8. If the person never drinks and always eats breakfast?
9. A developer of a new subdivision offers a prospective home buyer a choice of 4 designs, 3 different heating systems, a garage or carport, and a patio or screened porch. How many different plans are available to this buyer?
10. A drug for the relief of asthma can be purchased from 5 different manufacturers in liquid, tablet, or capsule form, all of which come in regular and extra strength. How many different ways can a doctor prescribe the drug for a patient suffering from asthma?
11. In a fuel economy study, each of 3 race cars is tested using 5 different brands of gasoline at 7 test sites located in different regions of the country. If 2 drivers are used in the study, and test runs are made once under each distinct set of conditions, how many test runs are needed?
12. In how many different ways can a true-false test consisting of 9 questions can be answered?
13. If a multiple-choice test consists of 5 questions each with 4 possible answers of which only 1 is correct,
14. In how many different ways can a student check off one answer to each question?
15. In how many ways can a student check off one answer to each question and get all the answers wrong?