

Exercise series N^01

Exercise 0.1. Use the rule method to describe the sample space S consisting of all points in the first quadrant inside a circle of radius 3 with center at the origin.

Exercise 0.2. An experiment involves tossing a pair of dice, one green and one red, and recording the numbers that come up. If x equals the outcome on the green die and y the outcome on the red die, describe the sample space S

1. by listing the elements (x, y) ;
 2. by using the rule method.
 3. list the elements corresponding to the event A that the sum is greater than 8;
 4. list the elements corresponding to the event B that a 2 occurs on either die;
 5. list the elements corresponding to the event C that a number greater than 4 comes up on the green die;
 6. list the elements corresponding to the event $A \cap C$;
 7. list the elements corresponding to the event $A \cap B$;
 8. list the elements corresponding to the event $B \cap C$;
 9. construct a Venn diagram to illustrate the intersections and unions of the events A , B , and C .
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Exercise 0.3. Before the distribution of certain statistical software, every fourth compact disk (CD) is tested for accuracy. The testing process consists of running four independent programs and checking the results. The failure rates for the four testing programs are, respectively, 0.01, 0.03, 0.02, and 0.01.

1. What is the probability that a CD was tested and failed any test?
 2. Given that a CD was tested, what is the probability that it failed program 2 or 3?
 3. In a sample of 100, how many CDs would you expect to be rejected?
 4. Given that a CD was defective, what is the probability that it was tested?
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Exercise 0.4. A random sample of 200 adults are classified below by sex and their level of education attained.:

	Male	Female
Secondary	38	45
College	28	50
University	22	17

- If a person is picked at random from this group, find the probability that
 1. the person is a male, given that the person has a secondary education;
 2. the person does not have a college degree, given that the person is a female.