

1. 4-letter words are formed from the letters in the word ARSENIC.
  - (a) How many different 'words' of this form can be made?
  - (b) How many of these 'words' contain no vowels?
2. The board of directors of a large corporation contains 11 people.
  - (a) If the board elects a President, Vice-President, and a Secretary, how many different election outcomes are possible?
  - (b) If the board elects three of its members as a delegation to a convention, how many delegations are possible?
  - (c) If the board of directors consists of 6 men and 5 women, how many of these delegations contain 2 or more women?
3. First, second, and third prizes are to be awarded at a Science Fair in which 15 exhibits have been entered. In how many different ways can the prizes be awarded?
4. How many 4-digit numbers between 5000 and 9000 can be formed using the digits 3, 4, 5, 6, 7, 8, and 9?
5. The 5-member Senior Week committee is to be chosen from 4 males and 8 females.
  - (a) How many different 5-member committees are possible?
  - (b) How many different 5-member committees are possible if the committee must consist of 2 males and 3 females?
  - (c) How many different 5-member committees are possible if the committee must consist of 4 or more females?
6. How many distinct arrangements are there of the letters in the word MURDERER?
7. The 25 members of the 'I HATE MATH' club are planning an end of quarter party.
  - (a) How many different 4-member planning committees are possible?
  - (b) How many different 4-member planning committees are possible if the club contains 15 females and 10 males and there must be 2 males and 2 females on the committee?
  - (c) How many planning committees are possible if the committee must consist of at least 3 females?
8. A company has 7 junior executives in San Francisco, 6 in Dallas, and 9 in Chicago. It wishes to select 4 junior executives to bring to its headquarters in New York. In how many ways can this be done if:
  - (a) 3 of the executives must come from the Chicago office?
  - (b) at least 3 executives must come from the Chicago office?
  - (c) 2 executives are chosen from the Chicago office and one from each of the other regional offices?
9. How many distinct arrangements of the letters in the word PEPPERONI are there?
10. In how many ways can 8 dancers be arranged in a chorus line?
11. A bipartisan committee of ten people is being formed. The committee must be made up of six Democrats and four Republicans. If there are nine Democrats and six Republicans to choose from, in how many different ways can the Committee be formed?

1. A single die is rolled. Find the probabilities of the following events.
  - (a) Rolling a 2
  - (b) Rolling an odd number
  - (c) Rolling a number less than 5
  - (d) Rolling a number greater than 3
2. A card is drawn from a well-shuffled deck of 52 cards. Find the probability of drawing each of the following.
  - (a) A 9
  - (b) The 9 of hearts
  - (c) A heart
  - (d) A black 9
  - (e) A red card
  - (f) A face card
3. The operator of a concession stand at a park keeps track of the kinds of drinks children buy. His records show the following:

DRINK	NUMBER OF CHILDREN
Coca-Cola	150
Fruit Juice	75
Lemonade	275

What is the probability that a child will buy lemonade?

4. The following table summarizes the responses to the question, "Do you personally know anyone, living or dead, who has been infected with AIDS?"

	YES	NO	TOTALS
Male	245	201	446
Female	228	356	684
Totals	473	557	1,030

What is the probability that a person in the survey

- (a) is a female?
  - (b) is a male who does not know anyone infected with AIDS?
5. During practice, a basketball player shoots 3 free throws that he either hits, (H) or misses (M).
    - (a) Draw the tree diagram.
    - (b) List the elements in the sample space.
    - (c) Find the probability that
      - i. he misses the third shot.
      - ii. makes at least one free shot.

