

1. A company has two positions to fill, those of department manager and an assistant manager. Three people are eligible for the manager position: X, Y, and Z, and four are eligible for the assistant manager position: A, B, C, and D. Draw the tree diagram to show the different ways in which the positions can be filled and list the outcomes.
2. A bag contains one red marble, one blue, one green, one yellow, and one orange. One marble is selected without replacement. If the color is red, green, or yellow, nothing else happens; otherwise, a second marble is drawn from the bag. Draw the tree diagram for this experiment and list the outcomes.
3. Use a tree diagram to show the different ways in which first, second, and third prizes can be awarded to three different contestants Jones, Allen, and Smith, if no contestant can win more than one award. List the outcomes.
4. A bag contains the numbers 1 through 4 written on separate but identical slips of paper. Two slips of paper are drawn from the bag and the numbers recorded. Draw the tree diagram and list the outcomes.
5. Teams A and B play each other in competition until one team wins two games in a row or until a total of four games have been played. Draw the tree diagram and list the outcomes.
6. A telephone sales representative makes successive calls to potential customers and the result of each call, either a sale (S) or no sale (N), is noted. Calls are made until either two no sale calls are made or a total of four calls is made. Draw the tree diagram and list the outcome.
7. VCR tapes produced on an assembly line are either acceptable or defective. An experiment consists of checking tapes one after another until either a defective tape has been found or three tapes have been checked. Once a tape has been checked, it is set aside and not checked again. Draw the tree diagram for this experiment and list the outcomes.