

Six male and six female dancers perform the Virginia reel. This dance requires that they form a line consisting of six male/female pairs. How many such arrangements are there?

An elevator containing 5 people can stop at any of 7 floors. Assume that the occupants act independently and that all floors are equally likely for each occupant. What is the probability that no two people get off at the same floor?

The first three digits of a university telephone exchange are 495. If all the sequences of the remaining four digits are equally likely, what is the probability that a randomly selected university phone number contains seven distinct digits?

A wine taster claims that she can distinguish four vintages of a particular Cabernet. If she is confronted with four unlabeled glasses of different types of vintages, what is the probability that she can do this by merely guessing?

Suppose 100 balls are distributed randomly into 4 urns. What is the probability that the last urn contains exactly 25 balls?