

1. We have 3 bags, each containing 2 marbles. The first bag contains two red marbles, the second bag contains two white marbles, and the third bag contains a white and a red marble. We randomly choose a bag and randomly pull a marble from it. The marble we pull is white. What is the probability that the other marble in the same bag is white as well?
2. We have 100 marbles, 50 red, 50 blue. We also have two empty bags. Place the marbles in the bags, so that
 - none of the bags is empty, and
 - We will randomly choose a bag and pull a marble from it. Maximize the probability of pulling a red marble.