Homework 2, ISyE 2027
Due May 27, Wednesday

1. In a certain city 30% of the people are Conservatives, 50% are Liberals, and 20% are Independents. In a given election, 2/3 of the Conservatives voted, 80% of the Liberals voted, and 50% of the Independents voted. If we pick a voter at random what is the probability that she is a liberal?

2. One die has 4 red and 2 white sides; a second die has 2 red and 4 white sides. If we pick a die at random (probability of picking a certain die is 1/2) and roll it, what is the probability the result is a red side?

3. A green and a red die are thrown. Let A be the event that the red die shows a 2 or a 5 and B be the event that the sum of the two dice is at least 7. Are A and B independent? Explain your answer.

4. Bill and George go target shooting together. Both shoot at a target at the same time. Suppose Bill hits a target with probability 0.7, whereas George independently hits a target with probability 0.4.

a. Given that exactly one shot hit the target, what is the probability it was George's shot?

b. Given that the target is hit, what is the probability that George hit it?