Quiz 1 on March 26

1. Alice has 2 classmates. Suppose the ratio in population for the blood types of AB, A, B, and O is $1 : 2 : 3 : 4$. Decide the probability that both are male given at least one is a male with blood type AB.

2. Team A and Team B are asked to design a new product within a month. Suppose Team A is successful with probability 1/2, Team B is successful with probability 1/3, and both teams are successful with probability 1/4. What is the probability that Team B fails given Team A succeeds?

3. Ivan (I), Jeff (J), and Katrin (K) need to complete a homework problem set. Suppose I succeeds with probability 1/2, J succeeds with probability 1/3, K succeeds with probability 1/4, I or J succeed with probability 3/4, I or K succeed with probability 2/3, J or K succeed with probability 1/2, and all succeed with probability 1/24. Given that exactly one is successful, what is the probability that it is K?

4. Flip a fair 6-face dice 12 times. Approximate the probability that every face shows up at least once.

5. 4 persons take a tour with a small bus with 5 passenger seats. Suppose seating is assigned randomly for the trip to the destination and the return trip. What is the probability that at least one person takes the same seat in both trips?