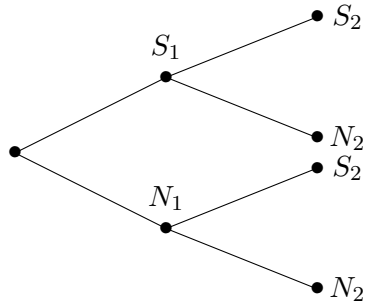


Finite Mathematics (Math 10120), Spring 2020
 Quiz 3, Friday, February 28, 2020

1. Michelle has a bag containing 12 numbered balls, consisting of two 1's, two 2's, two 3's, two 4's, two 5's and two 6's. She picks two balls in succession, **without replacement**. Let S_1 be the event that she picks a six as her first ball, and N_1 be the event that she does *not* pick a six as her first ball, and similarly define S_2 and N_2 for the second ball. Answer the following three parts. When you answer (b) and (c), you can leave your answers in the form of a fraction, or of a product of fractions, e.g. $\frac{1}{13}$ or $\left(\frac{1}{4}\right) \cdot \left(\frac{3}{7}\right)$.



- (a) Fill in the probabilities in the above tree diagram.
 (b) Find $P(S_1 \cap N_2)$.

Answer to (b):

- (c) Find $P(S_2 | N_1)$.

Answer to (c):

2. A certain class has 7 students. Each student is randomly assigned a number between 1 and 50 (inclusive). What is the probability that **at least two** of the students in this class are assigned the same number? You don't have to do the calculation – you can leave the answer in terms of powers, products, factorials, fractions, combination or permutation notation. (Hint: think complement.)

Answer: