

CS200 - Problem Set 9

1. **[6 points]** In the NFL (National Football League), 10 players from each team are chosen each week to have a drug test. These choices are supposed to be random. Eric Reid has accused the league of overtesting him because he has been outspoken against the league, particularly supporting players' right to kneel during the national anthem.

Assume there 72 people on the team, and consider an 11 week period where 10 people are chosen each week for a drug test, and each player is chosen with equal probability each week. Let E_i be the event that includes all elements of the sample space where a single player Z is chosen to be drug tested i times. Determine $P(E_i)$ for each i from 0 to 5. Then calculate the probability that player Z has *at least* 6 tests. (You can use python or mathematica or wolfram alpha or another tool to help do these calculations. $\binom{n}{k}$ is often written as `binom[n,k]` or `nchoosek(n,k)` as a built-in function.)

Eric Reid was actually tested 6 times in 11 weeks. Please comment. (We will discuss further in class.)