

Recitation 4
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1. Problem 2.3, page 119 of text. Fischer Spassky play a chess match in which the first player to win a game wins the match. After 10 successive draws, the match is declared drawn. Each game is won by Fischer with probability 0.4, is won by Spassky with probability 0.3, and is a draw with probability 0.3, independently of previous games.
 - (a) What is the probability that Fischer wins the match?
 - (b) What is the PMF of the duration of the match?
2. Problem 2.9, page 120 of text. Form the binomial PMF. Consider a binomial random variable X with parameters n and p . Let k^* be the largest integer that is less than or equal to $(n+1)p$. Show that the PMF $p_X(k)$ is monotonically nondecreasing with k in the range from 0 to k^* , and is monotonically decreasing with k for $k \geq k^*$.
3. Oscar goes to Las Vegas and finds that he can participate in a gamble in which he wins with probability p and loses with probability $1-p$. When $p > \frac{1}{2}$, a popular gambling strategy, known as Kelley strategy, is to always bet the fraction $2p-1$ of one's current fortune. Compute the **expected fortune** for Oscar after he partakes in n gambles if he starts off with x dollars and uses the Kelley strategy.