

Economics 520, Fall 2007

Homework 2

Due Tuesday, Sept 11 at beginning of class

1. Bowl I contains 6 red chips and 4 blue chips. Fives of these 10 chips are selected at random and without replacement and put in bowl II, which was originally empty. One chip is then drawn at random from bowl II. Find the conditional probability that 2 red chips and 3 blue chips were transferred from bowl I to bowl II given that a blue chip is drawn from bowl II.
2. Let F be the cumulative distribution function of a random variable X . Find the cumulative distribution function of $Y = \alpha X + \beta$, where $\alpha > 0$ and β are constants.
3. CB 1.52
4. CB 1.54
5. CB 1.55
6. CB 2.1
7. R Exercise: write functions definitions for the following functions. Print out the function definitions and check them by calculating some specific values, and also use the `curve` function in R to plot these functions over the unit interval $[0, 1]$.
 - (a) $f(x) = x + x^2 + x^3$.
 - (b) $f(x) = 2 * (x - 1/2)^2 + 3$.
 - (c) $f(x) = e^{2x}$.
8. Consider the Monty Hall example discussed in lecture, but now suppose that the host (Monty Hall) does not know which door the prize is behind. Instead, he opens one of the two remaining doors (after you have picked a door) at random. If Monty opens a door, and it does not contain the prize, is it still in your interest to switch to the third door?