Problem 5b (Lab)
Just run python2.7 hw12.py b for part b)
Code:

```
def partB(p=0.2, m=10000):
    # run trials
    tickets = []
    for i in range(1,m):
        tickets.append(lotteryTrial(p))

    plt.hist(tickets,bins = 100, normed = True)


    # overlay f(x)
    x = np.linspace(0, 100, 256, endpoint=True)
    plt.plot(x,lotteryPmf(x,p))
    # print the average number of lottery tickets
    print("Lily will most often only have to buy 1 ticket for a probability of .2 winning")

    # set up plot
    plt.xlabel("x = number of lottery tickets")
    plt.ylabel("fraction of trials with x lottery tickets")
    plt.title("Q5, part (b)")
    plt.legend()
    plt.show()
```
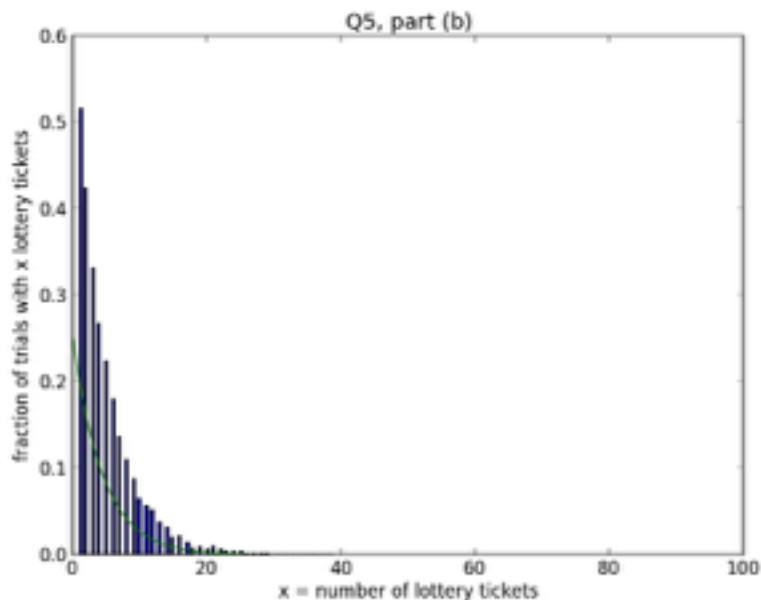

I wasn't able to make the histogram normalized so that the sum of bin counts is equal to 1. After setting normed = True, I also tried giving each bin count a weight of 1/m, but that didnt' work either. Either way, I got a histogram that shows the right shape and lines up with the pmt we found on the main part of the problem. More specifically, it looks like Lily will be more likely to

win on the first ticket than any of the other tickets. We expect that if Lily does win, she would win on the first ticket rather than any of the later ones. Buying more tickets only decreases her chances, apparently.