Math 20
Lab 3
Due: August 3, 2015

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1. Write a program to add numbers picked at random from $[0, 1]$ until the first time the sum is greater than 1. Repeat this experiment 10000 times to estimate the expected number of selections necessary for the sum to exceed 1 for the first time.

2. Repeat the above experiment except this time find the expected number of selections necessary for the sum to exceed $\frac{1}{2}$. Do the same for $\frac{1}{4}$. Can you predict what the expected number would be for the minimum number of picks to obtain a sum greater than $\frac{1}{3}$? What is the general formula?

In an email, submit your code for task 1, your experimental values for tasks 1 and 2, and your general formula from task 2.