

## Homework 3

Due: Monday, September 23, 11:59pm

Suppose you are given a “loaded” die whose six sides has the probabilities

1	2	3	4	5	6
$\frac{7}{113}$	$\frac{13}{113}$	$\frac{9}{113}$	$\frac{19}{113}$	$\frac{11}{113}$	$\frac{54}{113}$

1. Graph the discrete PDF and the CDF.
2. Determine the average and variance of this die.
3. Write a program that simulates rolling this die. As input for this program use the number of rolls (for example  $N=1000$ ) **and** the CDF. Run your code, graph your estimated PDF compare with the exact (given above).
4. Report the average and variance of your  $N=1000$  experiment.

Your report will show (1) the PDF and the CDF of the true distribution, (2) the mean and variance of the values in the table, (3) the estimated PDF of a  $n$  experiment using your program, (4) the mean and averages of your experiment.