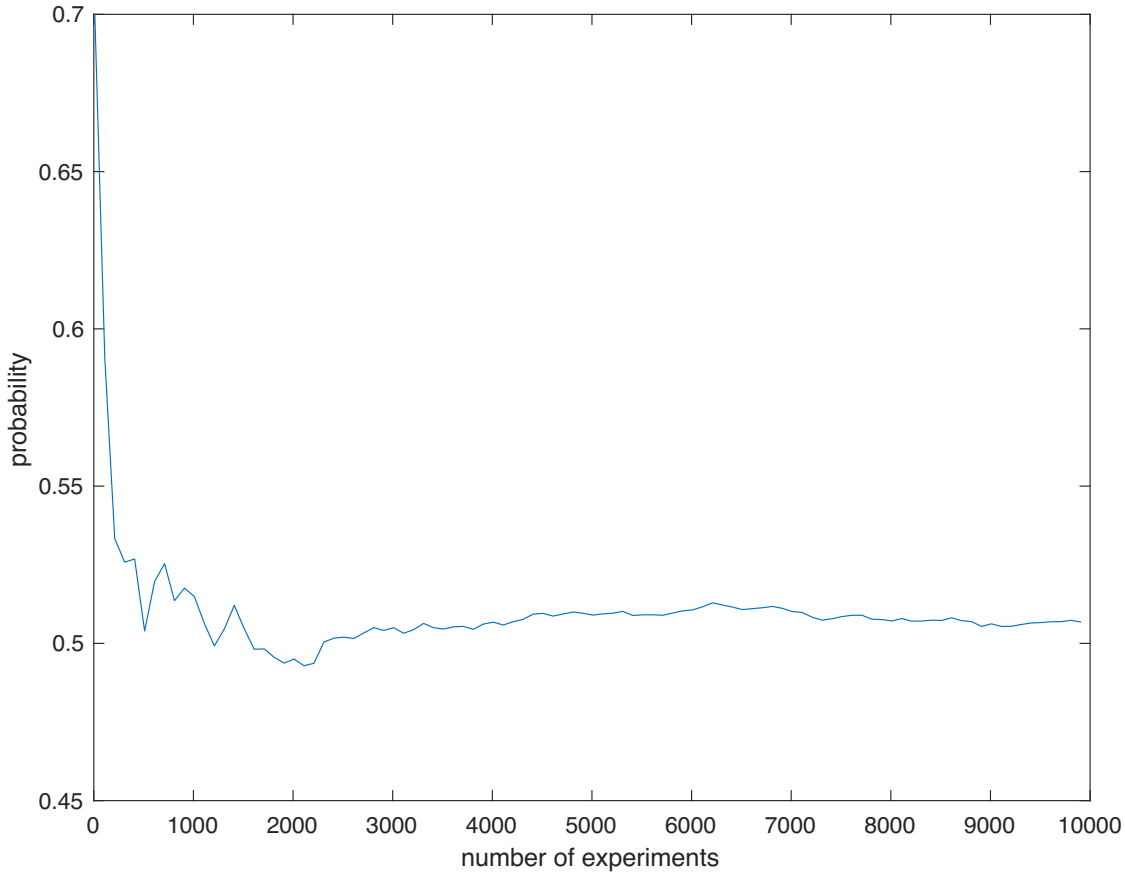
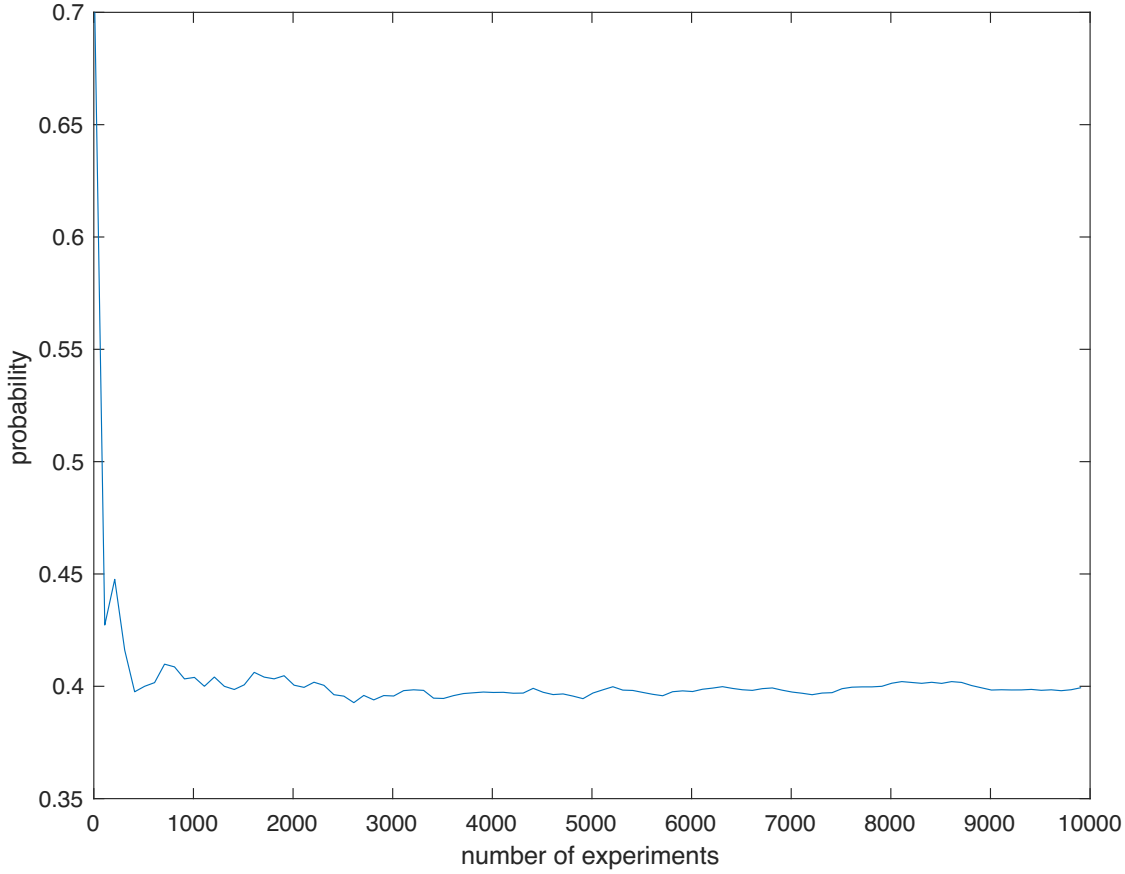
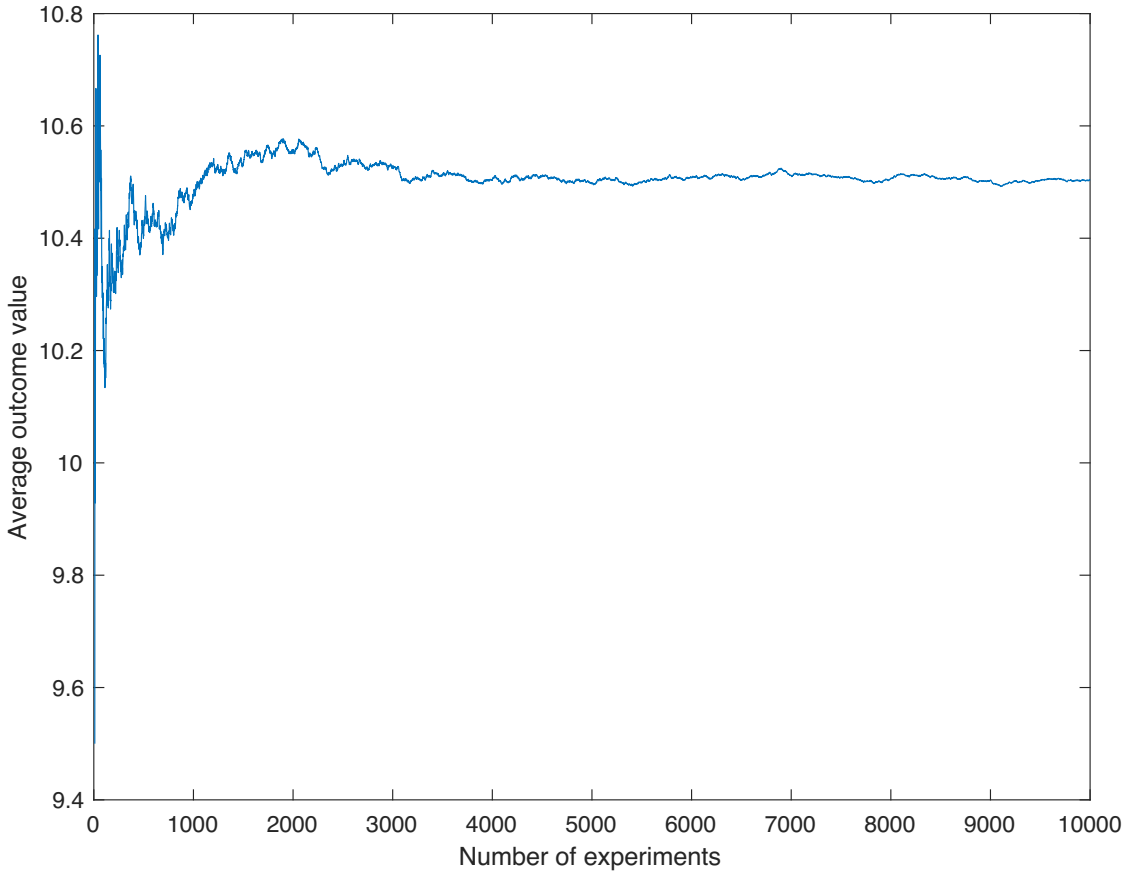
2a.fig


0.7
0.65
0.6
0.55
0.5
0.45
probability
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
number of experiments

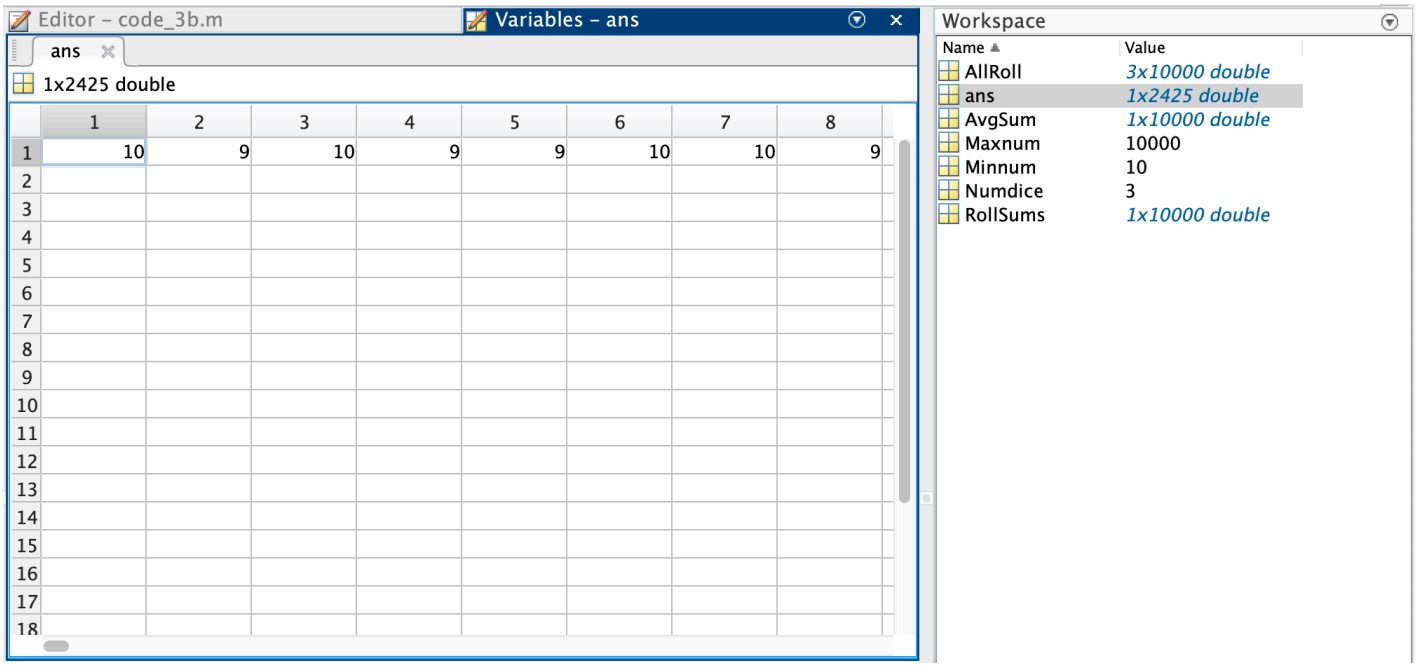
2b.fig


0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
probability
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
number of experiments

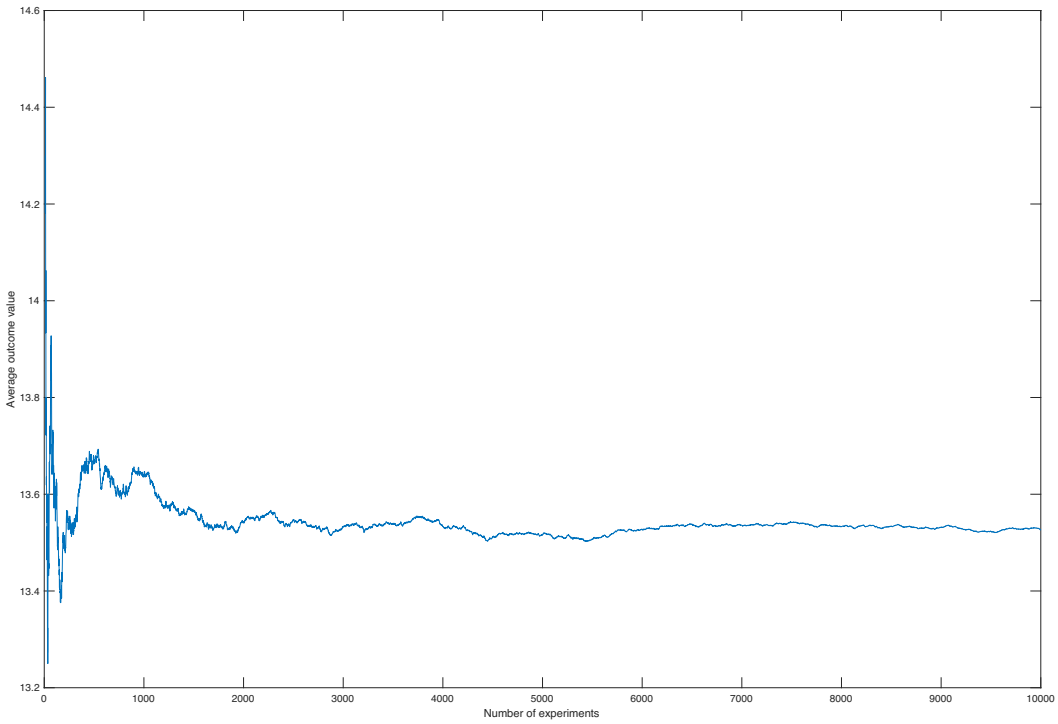
3a.fig


10.8
10.6
10.4
10.2
10
9.8
9.6
9.4
Average outcome value
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
Number of experiments

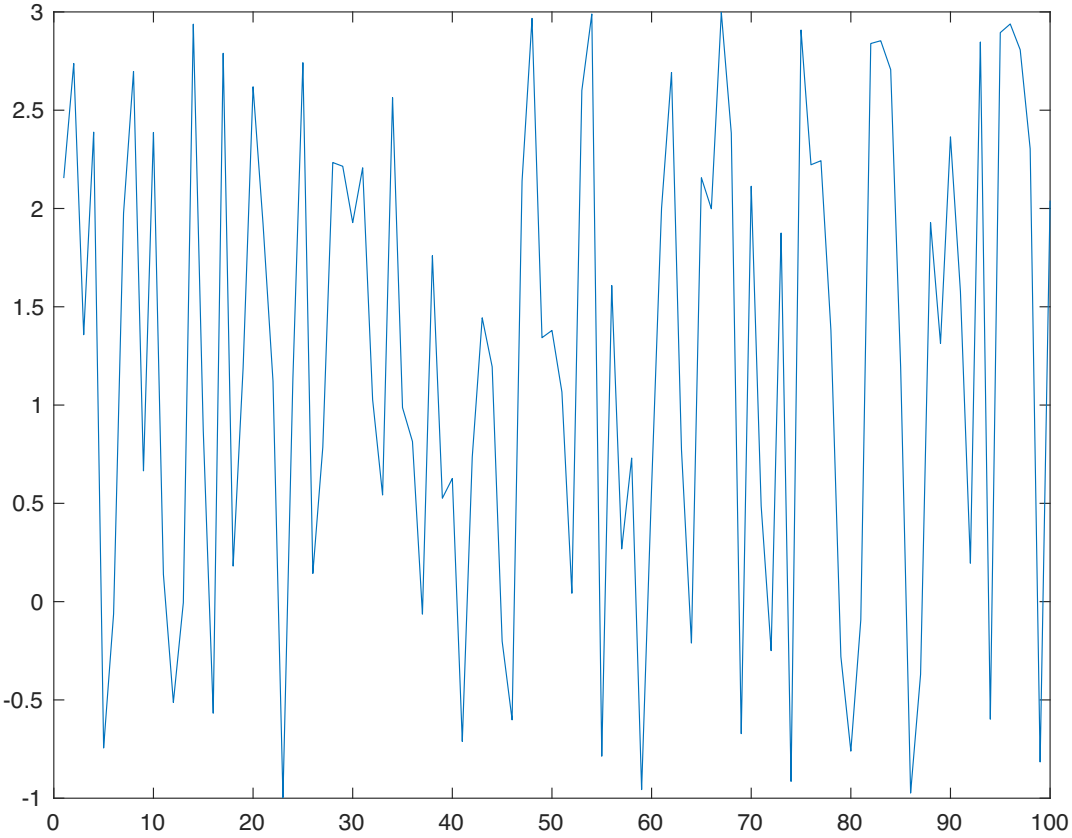
3b.fig


Editor – code_3b.m
Variables – ans
ans
1x2425 double
1 2 3 4 5 6 7 8
1 10 9 10 9 9 10 10 9
Workspace
Name
Value
AllRoll 3x10000 double
ans 1x2425 double
AvgSum 1x10000 double
Maxnum 10000
Minnum 10
Numdice 3
RollSums 1x10000 double

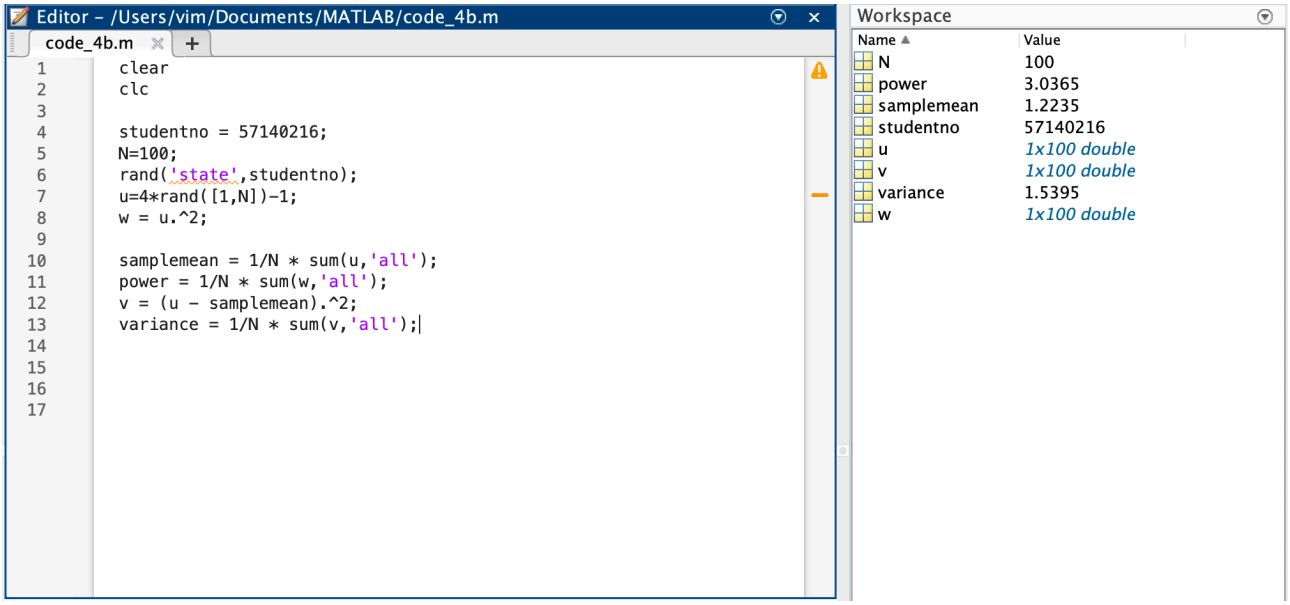
3c.fig


Average outcome value
Number of experiments
14.6
14.4
14.2
14
13.8
13.6
13.4
13.2
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

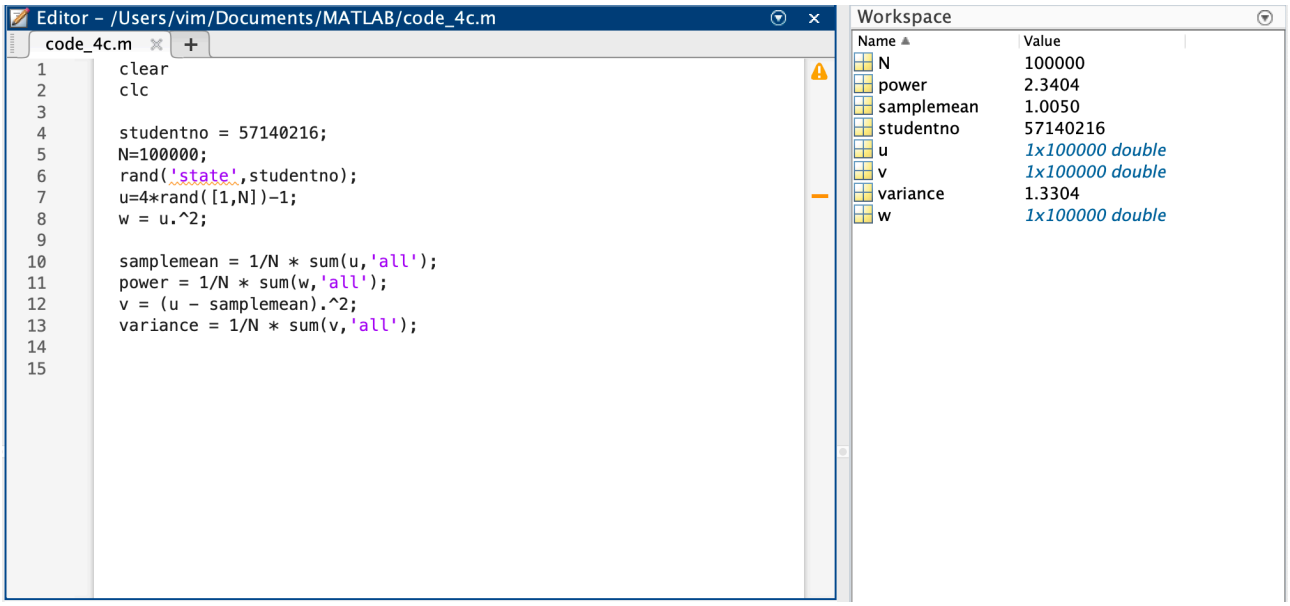
4a.fig


3
2.5
2
1.5
1
0.5
0
-0.5
-1
0
10
20
30
40
50
60
70
80
90
100

4b.fig


Editor – /Users/vim/Documents/MATLAB/code_4b.m
code_4b.m
1 clear
2 clc
3
4 studentno = 57140216;
5 N=100;
6 rand('state',studentno);
7 u=4*rand([1,N])-1;
8 w = u.^2;
9
10 samplemean = 1/N * sum(u,'all');
11 power = 1/N * sum(w,'all');
12 v = (u - samplemean).^2;
13 variance = 1/N * sum(v,'all');
14
15
16
17
Workspace
Name
Value
N 100
power 3.0365
samplemean 1.2235
studentno 57140216
u 1x100 double
v 1x100 double
variance 1.5395
w 1x100 double

4c.fig


Editor – /Users/vim/Documents/MATLAB/code_4c.m
code_4c.m
1 clear
2 clc
3
4 studentno = 57140216;
5 N=100000;
6 rand('state',studentno);
7 u=4*rand([1,N])-1;
8 w = u.^2;
9
10 samplemean = 1/N * sum(u,'all');
11 power = 1/N * sum(w,'all');
12 v = (u - samplemean).^2;
13 variance = 1/N * sum(v,'all');
14
15
Workspace
Name
Value
N 100000
power 2.3404
samplemean 1.0050
studentno 57140216
u 1x100000 double
v 1x100000 double
variance 1.3304
w 1x100000 double

4e.fig

Editor – /Users/vim/Documents/MATLAB/code_4e_4f.m

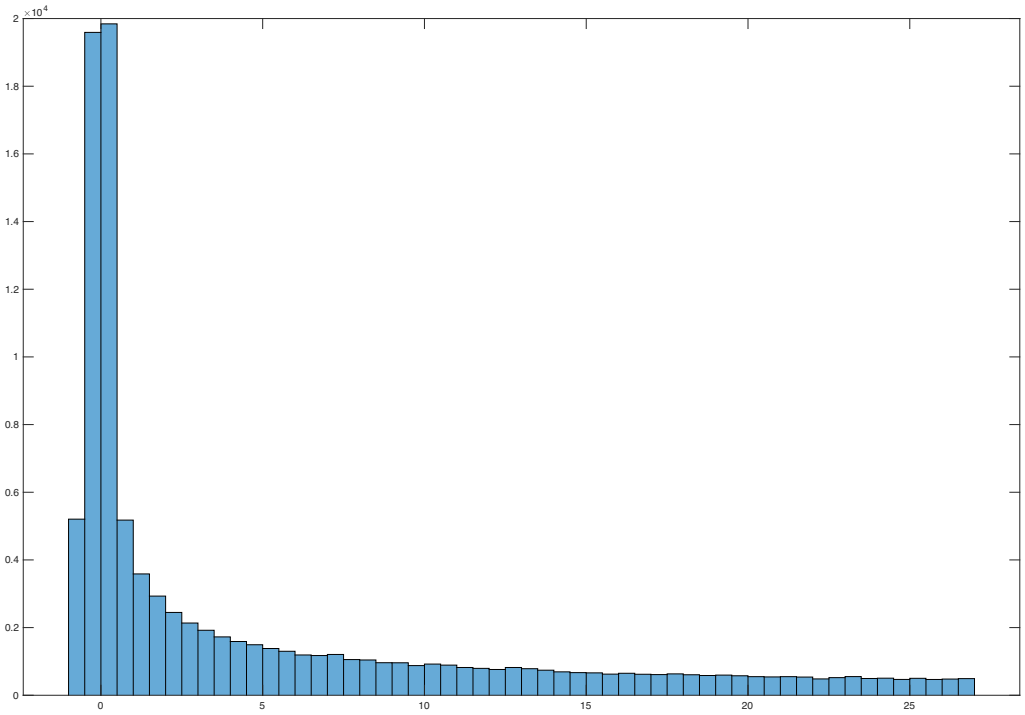
code_4e_4f.m

```
clear
clc

studentno = 57140216;
N=100000;
rand('state',studentno);
u=4*rand([1,N])-1;
w = u.^2;
V = u.^3;
mu = 0;
sigma = 1;
pd = makedist('Normal');

samplemean = 1/N * sum(u,'all');
power = 1/N * sum(w,'all');
v = (u - samplemean).^2;
variance = 1/N * sum(v,'all');

histogram(V);
Vmean = mean(V);
PD = pdf(pd, V);
plot(V, PD);
```

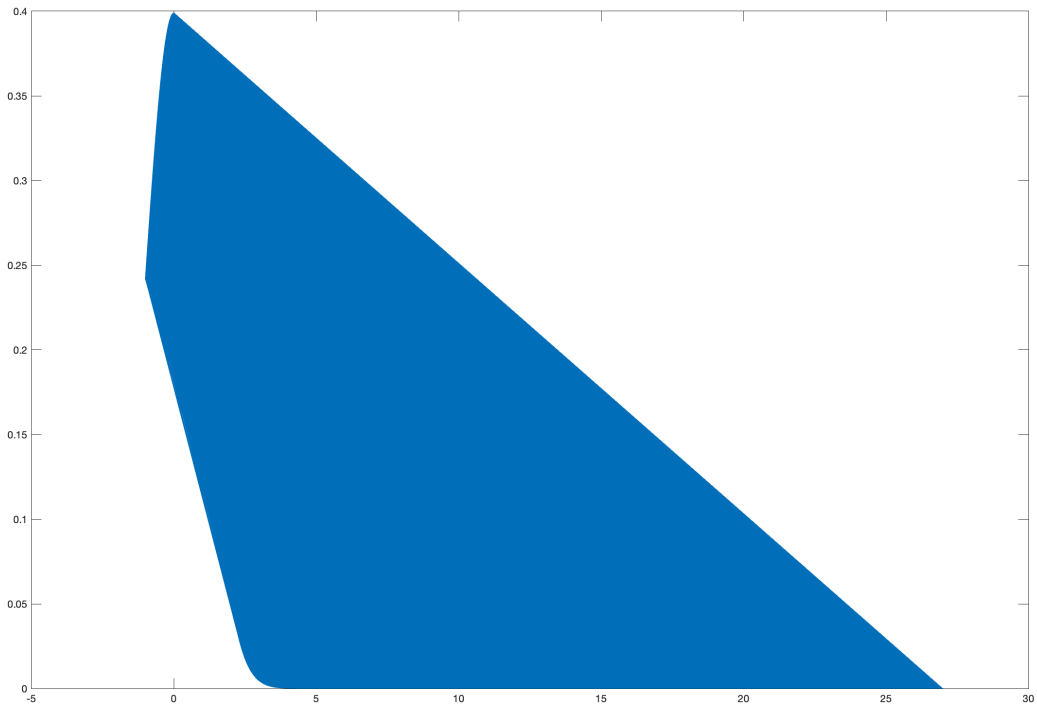
Workspace

Name	Value
mu	0
N	100000
pd	*1x1 NormalDistri...*
PD	*1x100000 double*
power	2.3404
samplemean	1.0050
sigma	1
studentno	57140216
u	*1x100000 double*
v	*1x100000 double*
V	*1x100000 double*
variance	1.3304
Vmean	5.0146
w	*1x100000 double*

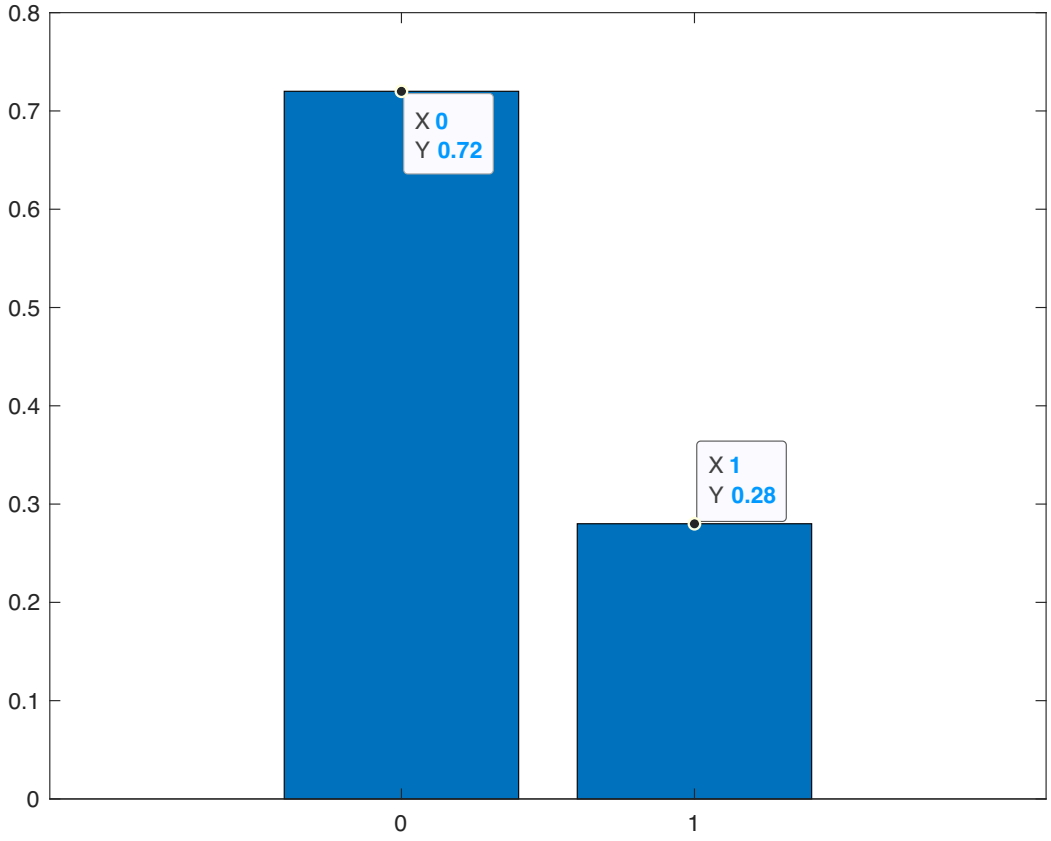
4e_histogram.fig



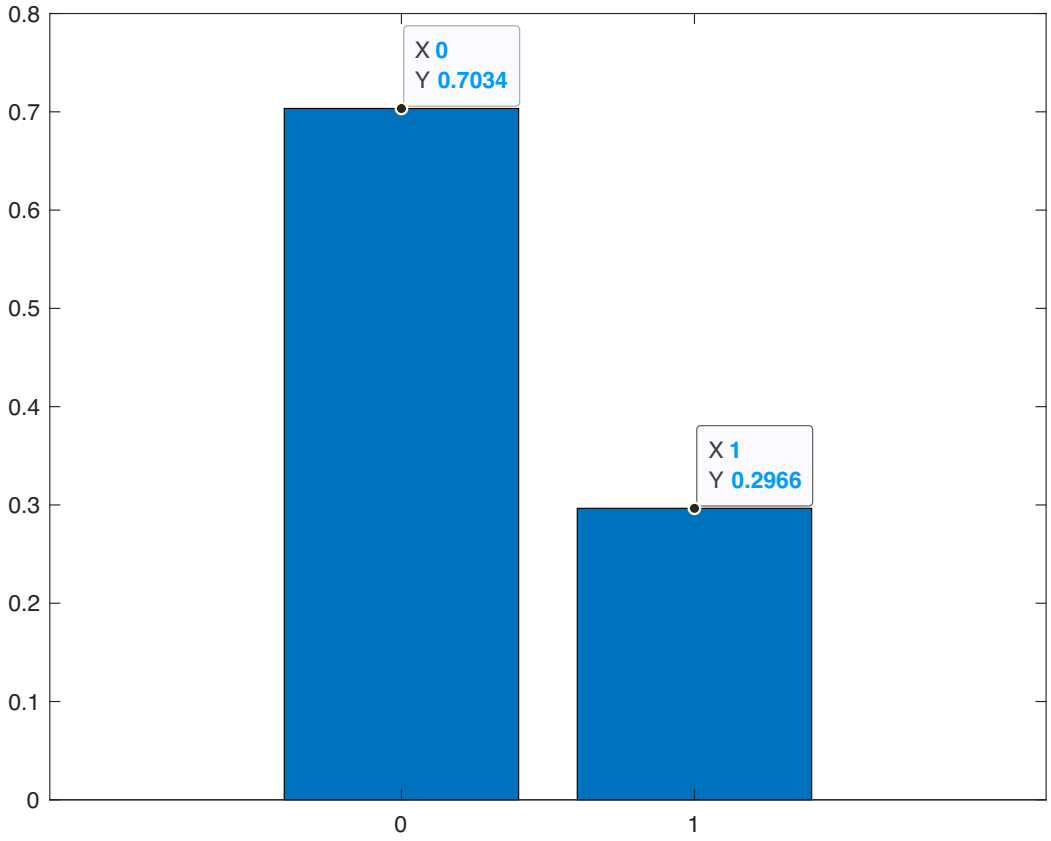
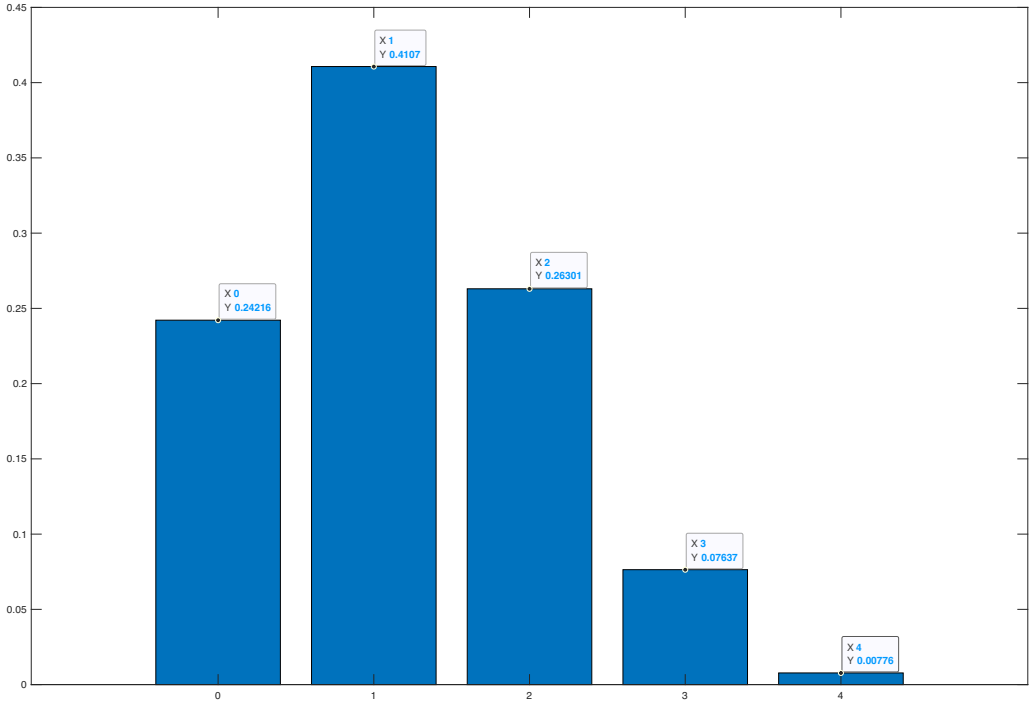
4e_pdf.fig



5a_pmf.fig



5b_pmf.fig



5c_pmf.fig