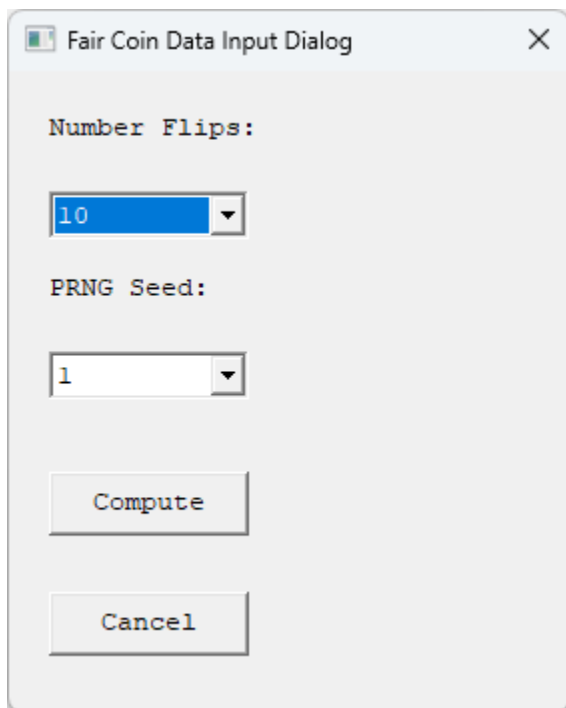
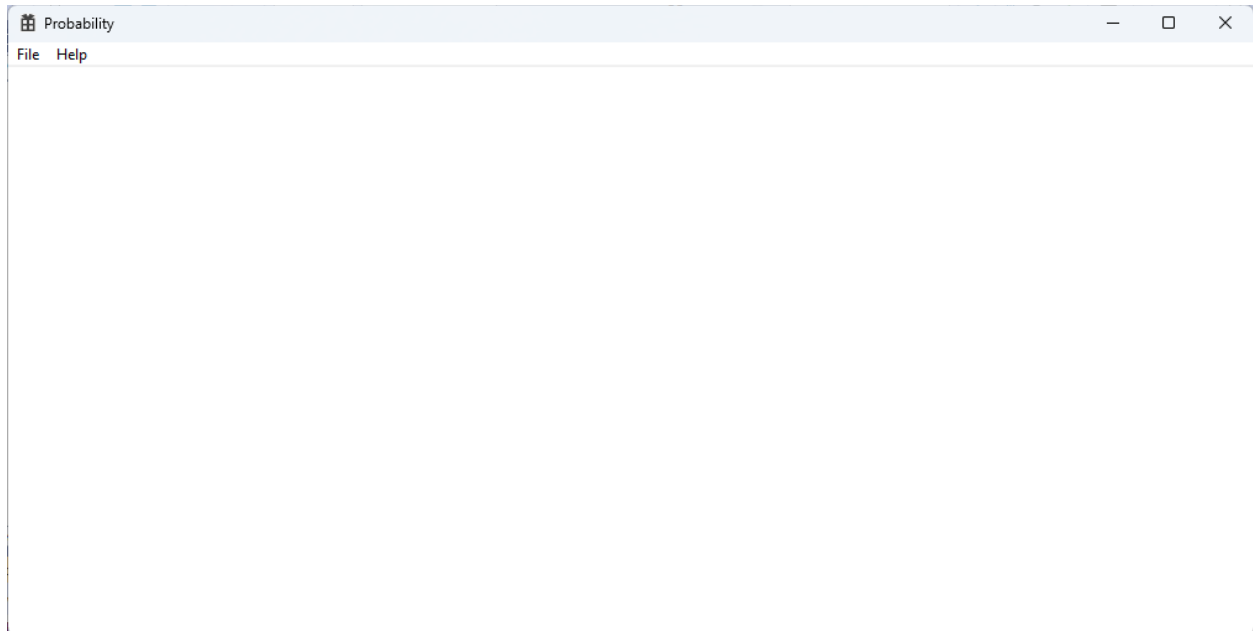


Blog Entry © Saturday, November 28, 2025, by James Pate Williams, Jr. Fair Coin and Fair Dice Probabilities



Fair Coin Tabular Data

×

# Flips	10		
# Heads	3	Probability	0.300000
# Tails	7	Probability	0.700000

Runs	#	Probability	Theory
1	3	0.300000	0.500000
2	1	0.100000	0.250000
3	0	0.000000	0.125000
4	0	0.000000	0.062500
5	0	0.000000	0.031250
6	0	0.000000	0.015625
7	0	0.000000	0.007812
8	0	0.000000	0.003906
9	0	0.000000	0.001953
10	0	0.000000	0.000977
Sum		0.400000	0.999023

Draw

Cancel

Fair Coin Tabular Data

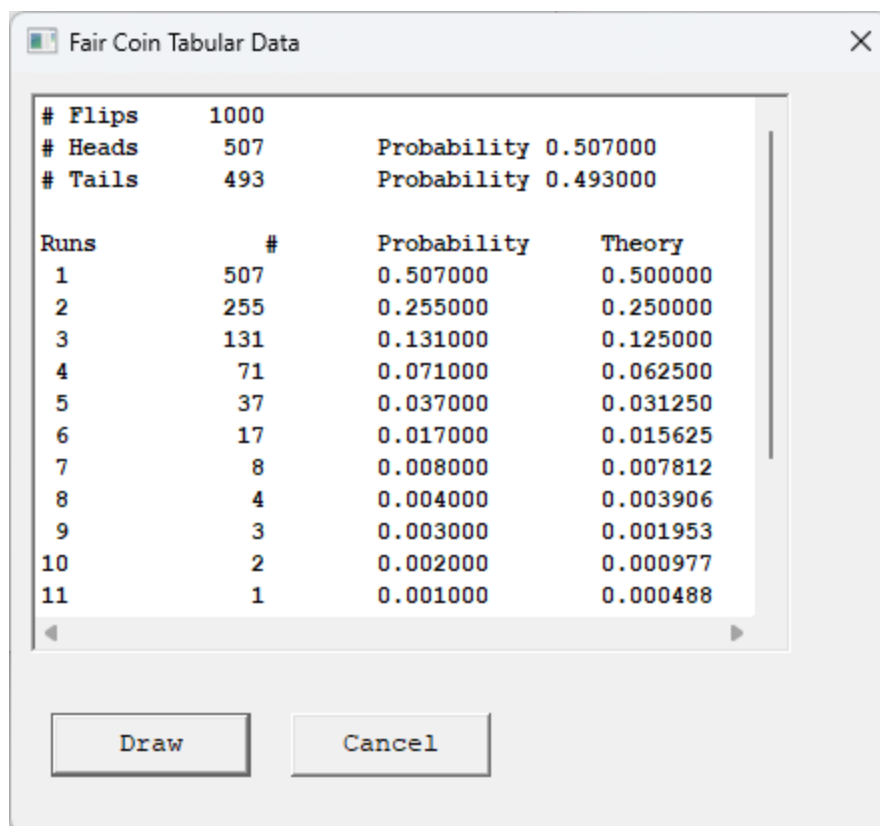
×

# Flips	100		
# Heads	48	Probability	0.480000
# Tails	52	Probability	0.520000

Runs	#	Probability	Theory
1	48	0.480000	0.500000
2	23	0.230000	0.250000
3	11	0.110000	0.125000
4	7	0.070000	0.062500
5	5	0.050000	0.031250
6	3	0.030000	0.015625
7	1	0.010000	0.007812
8	0	0.000000	0.003906
9	0	0.000000	0.001953
10	0	0.000000	0.000977
11	0	0.000000	0.000488

Draw

Cancel



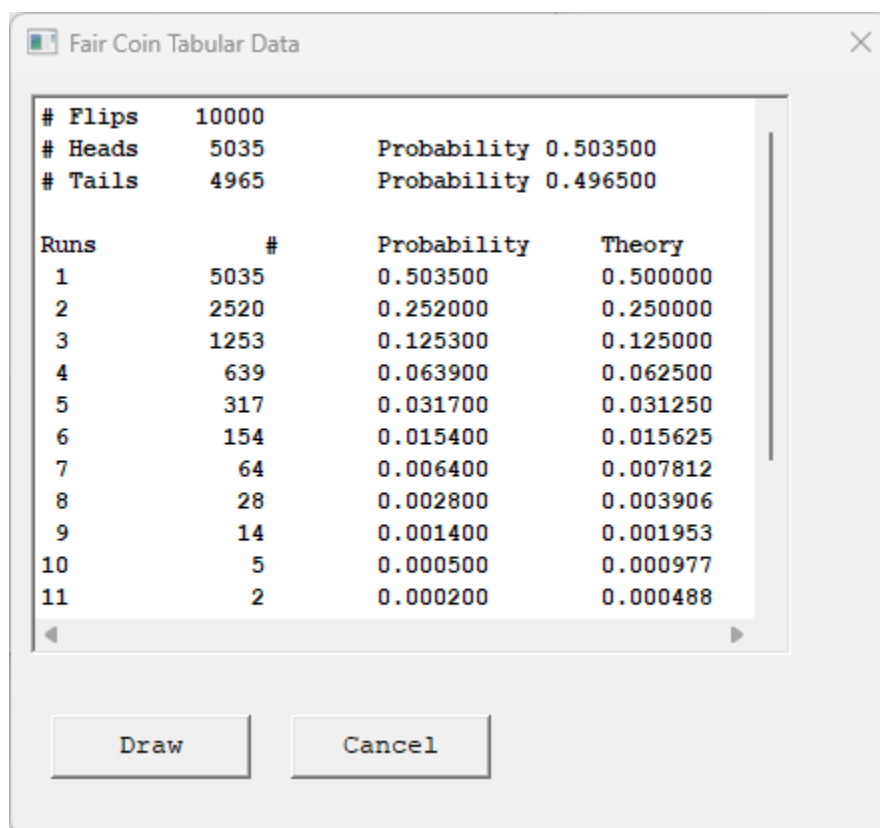
A window titled "Fair Coin Tabular Data" with a close button (X) in the top right corner. It contains a text area with statistical data for 1000 flips and a table of run lengths. At the bottom are "Draw" and "Cancel" buttons.

# Flips	# Heads	# Tails	Probability
1000	507	493	0.507000
			0.493000

Runs	#	Probability	Theory
1	507	0.507000	0.500000
2	255	0.255000	0.250000
3	131	0.131000	0.125000
4	71	0.071000	0.062500
5	37	0.037000	0.031250
6	17	0.017000	0.015625
7	8	0.008000	0.007812
8	4	0.004000	0.003906
9	3	0.003000	0.001953
10	2	0.002000	0.000977
11	1	0.001000	0.000488

Draw

Cancel



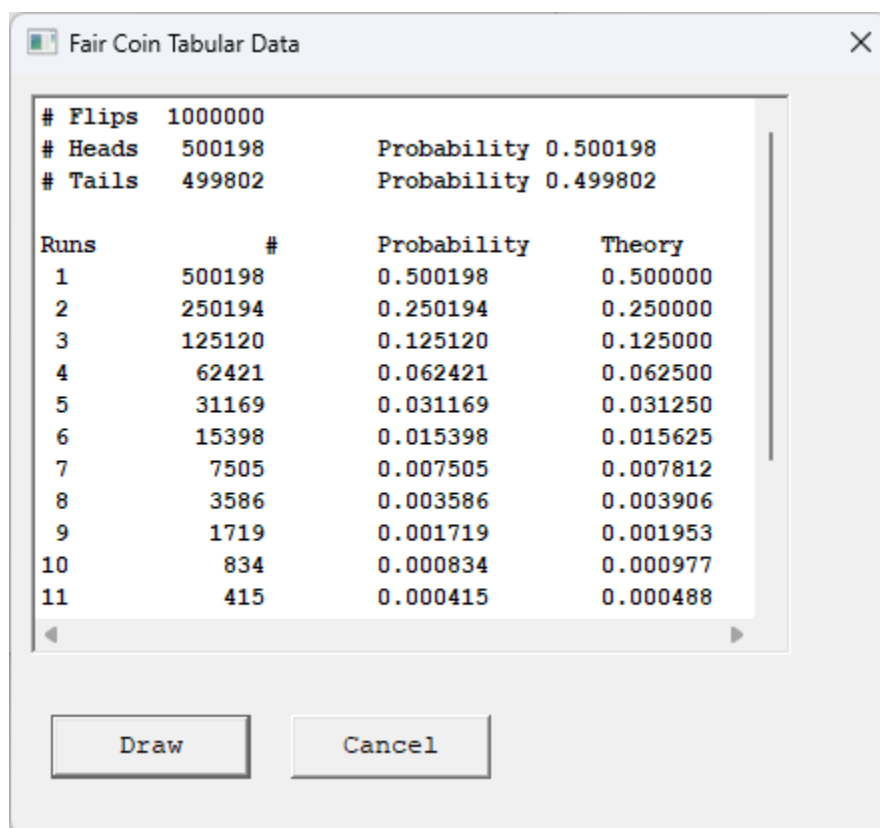
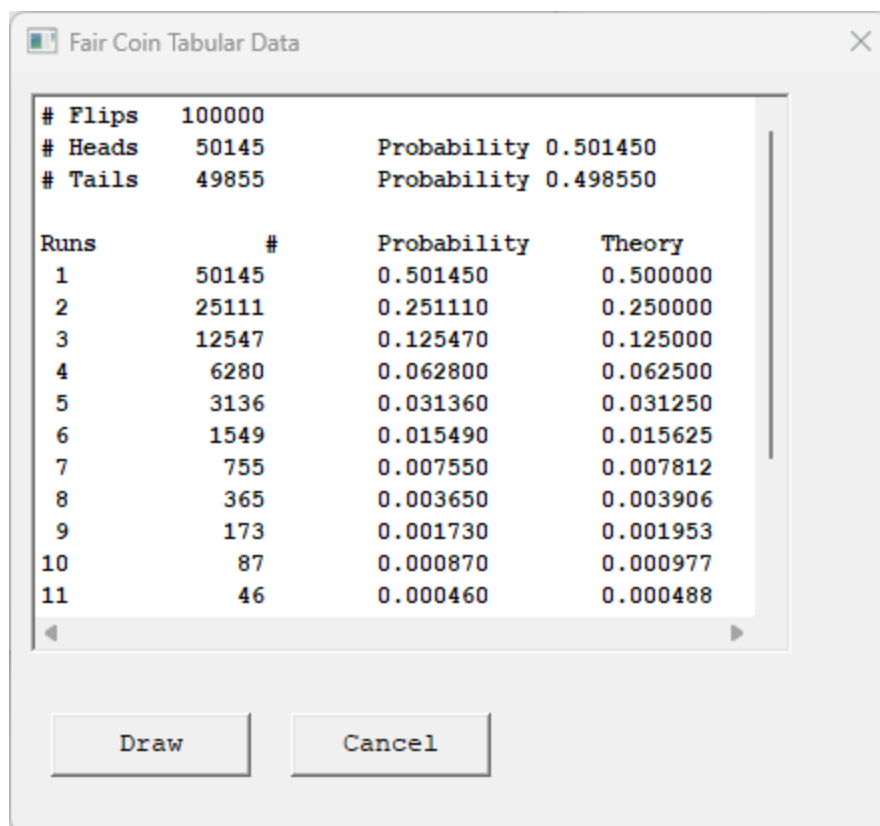
A window titled "Fair Coin Tabular Data" with a close button (X) in the top right corner. It contains a text area with statistical data for 10000 flips and a table of run lengths. At the bottom are "Draw" and "Cancel" buttons.

# Flips	# Heads	# Tails	Probability
10000	5035	4965	0.503500
			0.496500

Runs	#	Probability	Theory
1	5035	0.503500	0.500000
2	2520	0.252000	0.250000
3	1253	0.125300	0.125000
4	639	0.063900	0.062500
5	317	0.031700	0.031250
6	154	0.015400	0.015625
7	64	0.006400	0.007812
8	28	0.002800	0.003906
9	14	0.001400	0.001953
10	5	0.000500	0.000977
11	2	0.000200	0.000488

Draw

Cancel



Fair Dice Data Input Dialog

Number Rolls:

10

PRNG Seed:

1

Roll 1

Roll 2

Cancel

Fair Dice Tabular Data

#	Count	Exp	Theory
1	2	0.20000	0.16667
2	0	0.00000	0.16667
3	1	0.10000	0.16667
4	0	0.00000	0.16667
5	4	0.40000	0.16667
6	3	0.30000	0.16667

Draw Cancel

#	Count	Exp	Theory
1	14	0.14000	0.16667
2	9	0.09000	0.16667
3	18	0.18000	0.16667
4	20	0.20000	0.16667
5	20	0.20000	0.16667
6	19	0.19000	0.16667

Draw Cancel

#	Count	Exp	Theory
1	156	0.15600	0.16667
2	162	0.16200	0.16667
3	180	0.18000	0.16667
4	168	0.16800	0.16667
5	157	0.15700	0.16667
6	177	0.17700	0.16667

Draw Cancel

Fair Dice Tabular Data

#	Count	Exp	Theory
1	1657	0.16570	0.16667
2	1679	0.16790	0.16667
3	1656	0.16560	0.16667
4	1694	0.16940	0.16667
5	1652	0.16520	0.16667
6	1662	0.16620	0.16667

Draw Cancel

Fair Dice Tabular Data

#	Count	Exp	Theory
1	16628	0.16628	0.16667
2	16719	0.16719	0.16667
3	16458	0.16458	0.16667
4	16752	0.16752	0.16667
5	16769	0.16769	0.16667
6	16674	0.16674	0.16667

Draw Cancel

#	Count	Exp	Theory
1	166708	0.16671	0.16667
2	166858	0.16686	0.16667
3	165966	0.16597	0.16667
4	166729	0.16673	0.16667
5	167128	0.16713	0.16667
6	166611	0.16661	0.16667

Draw Cancel

##	Count	Exp	Theory
2	1	0.10000	0.02778
3	0	0.00000	0.16667
4	0	0.00000	0.16667
5	2	0.20000	0.11111
6	1	0.10000	0.13889
7	0	0.00000	0.16667
8	2	0.20000	0.13889
9	0	0.00000	0.16667
10	1	0.10000	0.08333
11	1	0.10000	0.05556
12	2	0.20000	0.02778

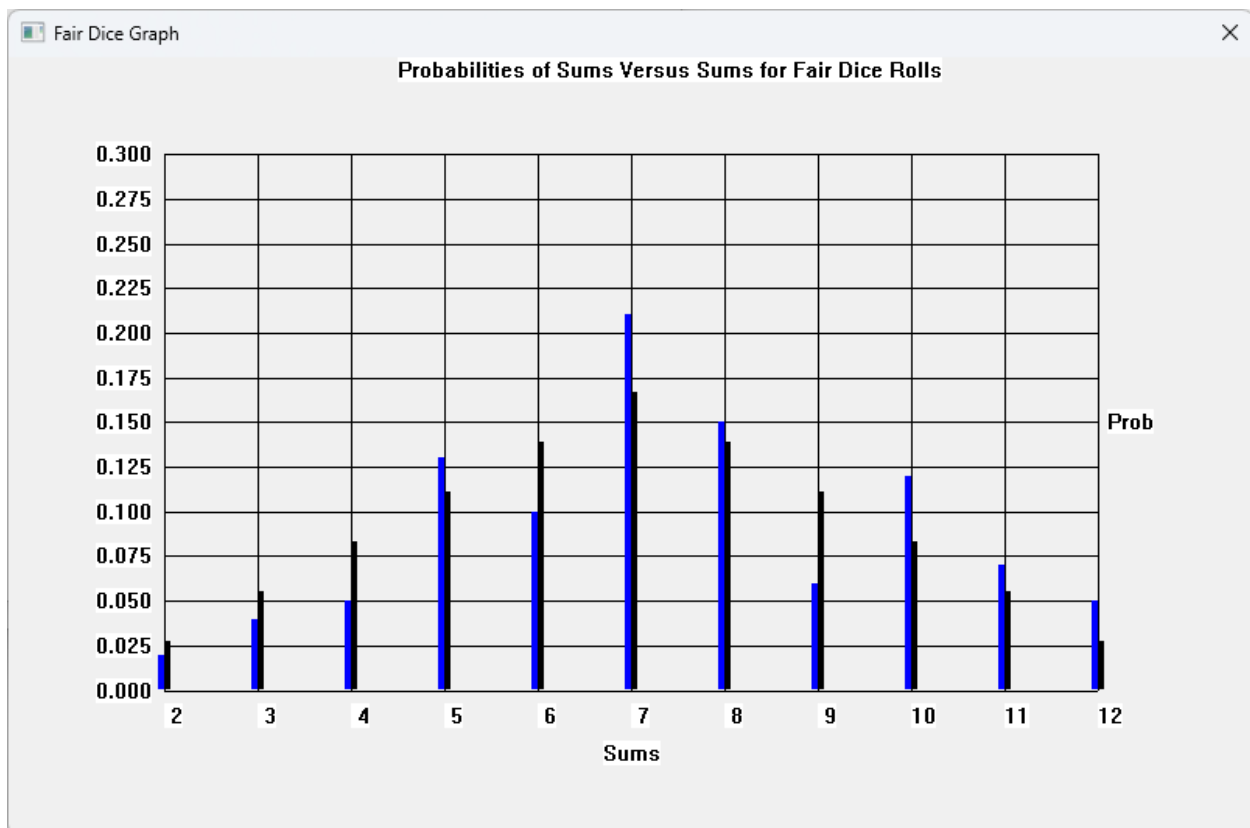
Draw Cancel



Fair Dice Tabular Data

##	Count	Exp	Theory
2	2	0.02000	0.02778
3	4	0.04000	0.05556
4	5	0.05000	0.08333
5	13	0.13000	0.11111
6	10	0.10000	0.13889
7	21	0.21000	0.16667
8	15	0.15000	0.13889
9	6	0.06000	0.11111
10	12	0.12000	0.08333
11	7	0.07000	0.05556
12	5	0.05000	0.02778

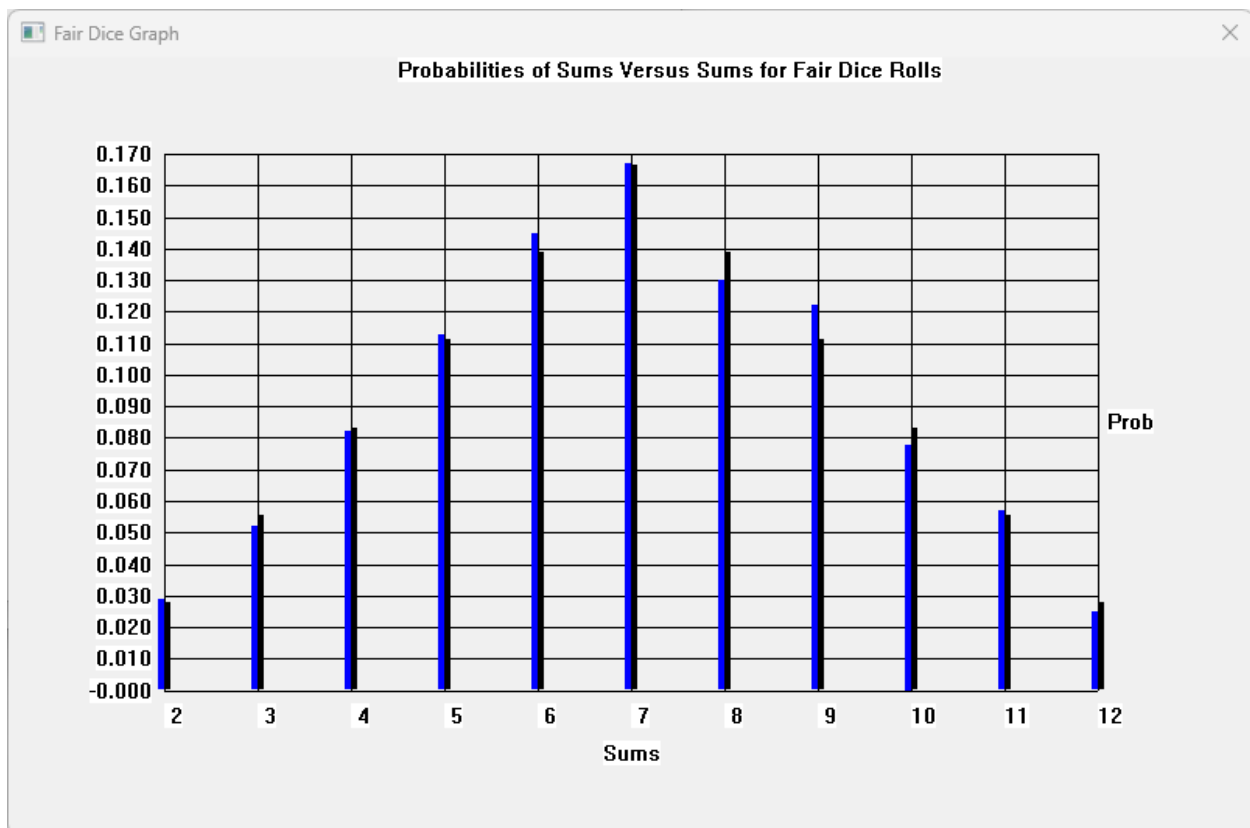
Draw Cancel



Fair Dice Tabular Data

##	Count	Exp	Theory
2	29	0.02900	0.02778
3	52	0.05200	0.05556
4	82	0.08200	0.08333
5	113	0.11300	0.11111
6	145	0.14500	0.13889
7	167	0.16700	0.16667
8	130	0.13000	0.13889
9	122	0.12200	0.11111
10	78	0.07800	0.08333
11	57	0.05700	0.05556
12	25	0.02500	0.02778

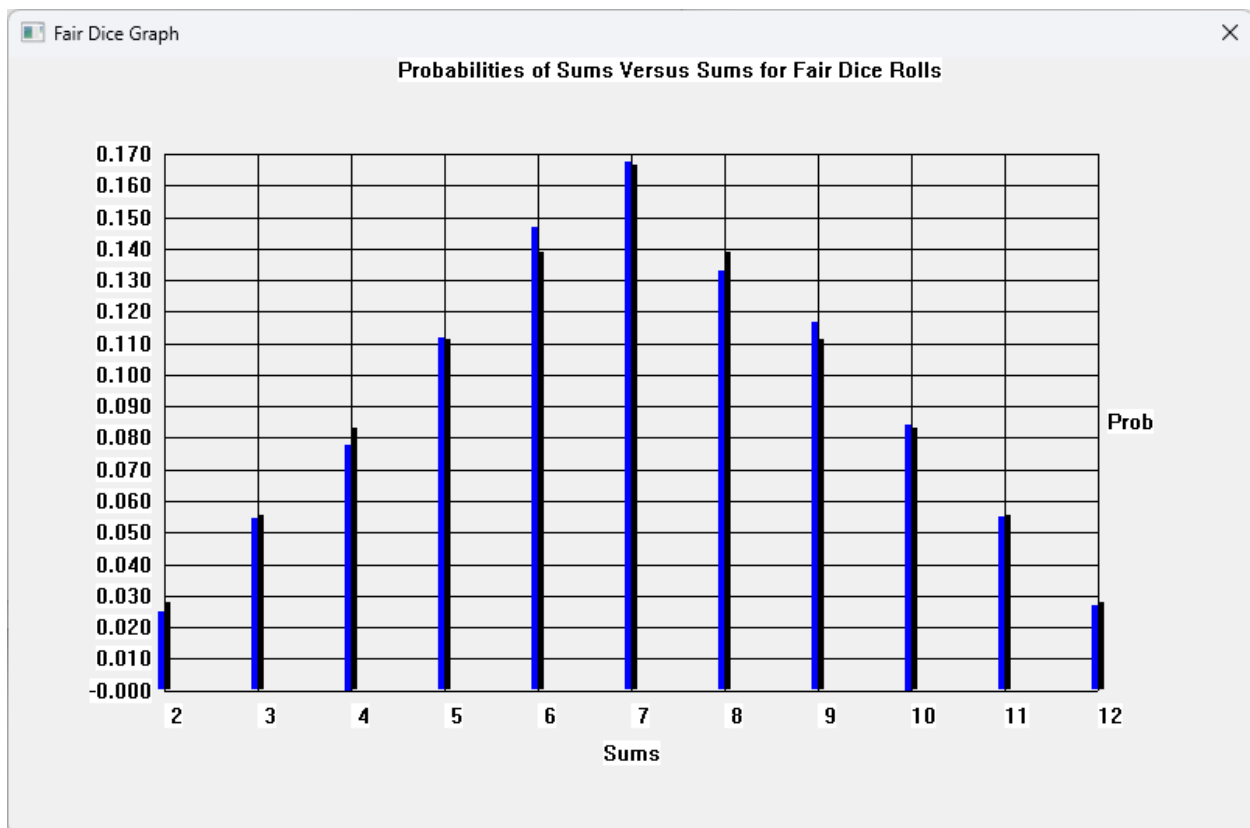
Draw Cancel



Fair Dice Tabular Data

##	Count	Exp	Theory
2	250	0.02500	0.02778
3	546	0.05460	0.05556
4	780	0.07800	0.08333
5	1117	0.11170	0.11111
6	1468	0.14680	0.13889
7	1677	0.16770	0.16667
8	1330	0.13300	0.13889
9	1167	0.11670	0.11111
10	844	0.08440	0.08333
11	551	0.05510	0.05556
12	270	0.02700	0.02778

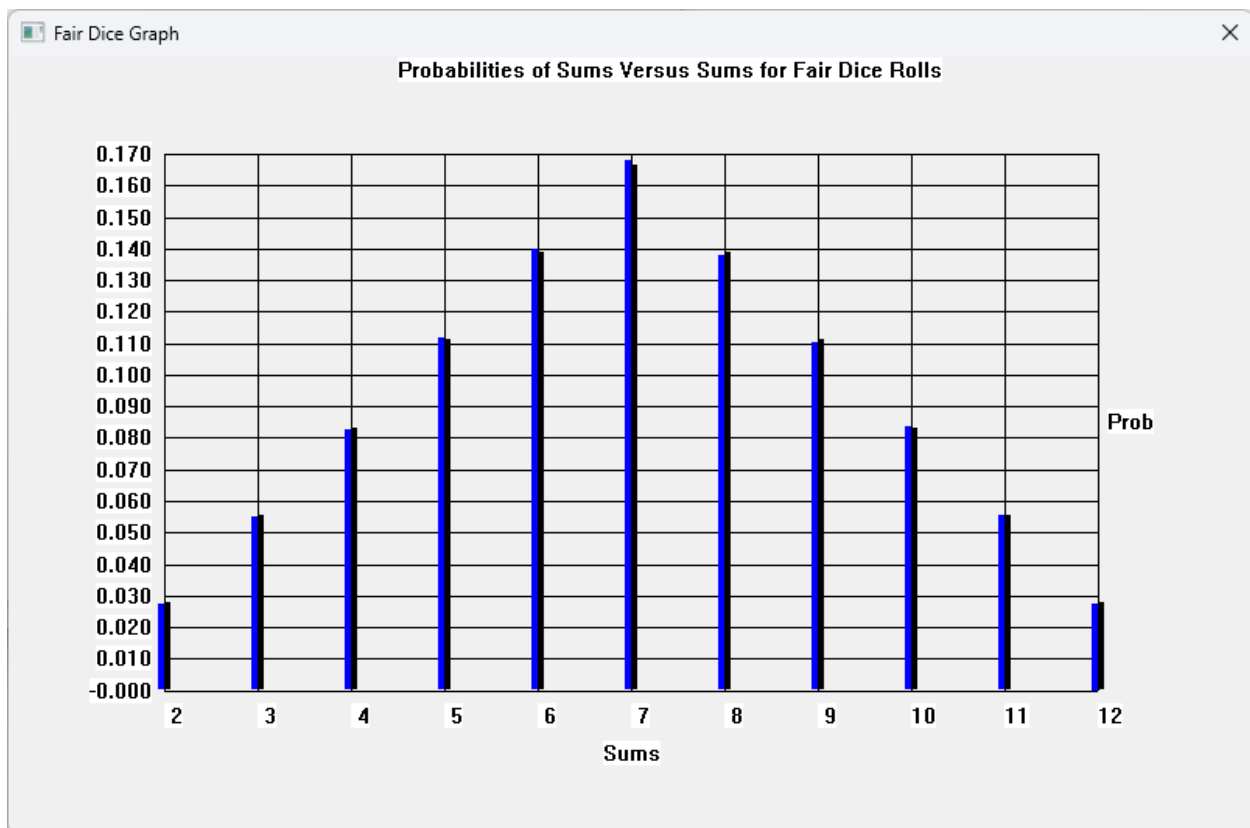
Draw Cancel



Fair Dice Tabular Data

##	Count	Exp	Theory
2	2737	0.02737	0.02778
3	5501	0.05501	0.05556
4	8290	0.08290	0.08333
5	11177	0.11177	0.11111
6	14008	0.14008	0.13889
7	16791	0.16791	0.16667
8	13789	0.13789	0.13889
9	11011	0.11011	0.11111
10	8376	0.08376	0.08333
11	5556	0.05556	0.05556
12	2764	0.02764	0.02778

Draw Cancel



Fair Dice Tabular Data

##	Count	Exp	Theory
2	27686	0.02769	0.02778
3	55303	0.05530	0.05556
4	83379	0.08338	0.08333
5	111280	0.11128	0.11111
6	139102	0.13910	0.13889
7	166694	0.16669	0.16667
8	138955	0.13895	0.13889
9	111094	0.11109	0.11111
10	83275	0.08328	0.08333
11	55581	0.05558	0.05556
12	27651	0.02765	0.02778

Draw Cancel

Probabilities of Sums Versus Sums for Fair Dice Rolls

