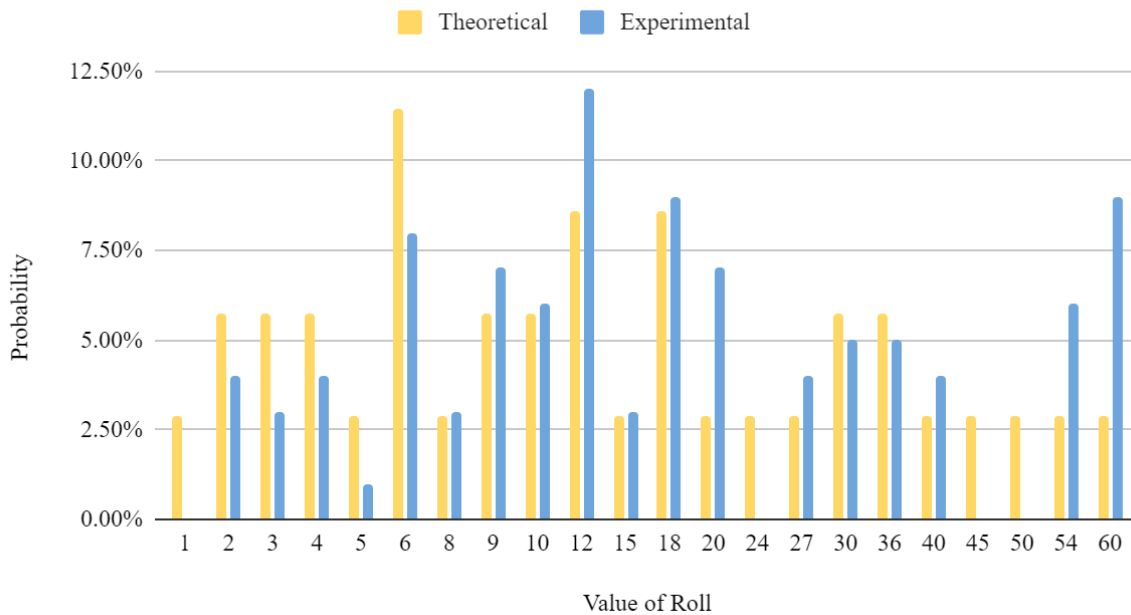


Theoretical vs Experimental Results



As can be seen by the graph above, the experimental and theoretical data line up fairly well, save for some outliers (6, 12, 54, 60).

When performing 100 tests of a situation with 35 outcomes, it is not unlikely to have some possible combinations that will not appear. In this case, 1, 24, 45, and 50 did not appear in experimental trials although those were possible outcomes.

The following is the data table showing the predicted values on each dice (D_1 : 1,2,3,6,9,10
 D_2 : 1,2,3,4,5,6)

Dice Combos		1	2	3	6	9	10
	1	1	2	3	6	9	10
	2	2	4	6	12	18	20
	3	3	6	9	18	27	30
	4	4	8	12	24	36	40
	5	5	10	15	30	45	50
	6	6	12	18	36	54	60

When turned into a frequency table, it looks like this

Value of Roll	Roll Possibilities	Roll Probability
1	1	2.86%
2	2	5.71%
3	2	5.71%
4	2	5.71%
5	1	2.86%
6	4	11.43%
8	1	2.86%

9	2	5.71%
10	2	5.71%
12	3	8.57%
15	1	2.86%
18	3	8.57%
20	1	2.86%
24	1	2.86%
27	1	2.86%
30	2	5.71%
36	2	5.71%
40	1	2.86%
45	1	2.86%
50	1	2.86%
54	1	2.86%
60	1	2.86%
Total	35	

This is the experimental frequency table

Value of Roll (x)	Frequency	Percentage
2	4	4%
3	3	3%
4	4	4%
5	1	1%
6	8	8%
8	3	3%
9	7	7%
10	6	6%
12	12	12%
15	3	3%
18	9	9%
20	7	7%
27	4	4%
30	5	5%
36	5	5%
40	4	4%
54	6	6%
60	9	9%

Total	100	
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Notice how in the theoretical table, the total is listed as 35 for the 35 possible outcomes, whereas the total for the experimental data is listed as 100. This is due to the fact that the experimental data has a set number of values but not necessarily every outcome is listed, whereas the theoretical data has a known set of outcomes.

It is possible to find experimental results that match theoretical results, however, this is often found with an enormous amount of testing (i.e. the casino dice roll rule). This has shown that 100 trials will not result in matching data sets, however, it is enough proof that the dice would look like this

