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Rolling dice:
What numbers accrue the most?

Dice are used in many different ways, from playing games to gambling. The purpose of this study was to calculate the probability of rolling certain numbers with a dice. Rolling one dice gives you an equal chance of getting any number for one to six. However, if you were to roll two dice, your range increases from six possible numbers to 11. Now the new range is from two to 12. The chance of you rolling two or 12 is low because the only possible combination of numbers that add to two is if you roll 2 ones. The same applies if you were to get a sum of 12. Two dice were rolled 100 times and the numbers were recorded. Numbers from five through nine accrued the most.

Introduction:

In this experiment, two dice will be thrown to see the probability of rolling a certain number. Probability means “the likelihood of something happening or being the case.” The purpose of this experiment was to find out which number came up the most after 100 tosses. My hypothesis is that the numbers from 6-9 will accrue very often because they are in the middle. Also, the median is around those numbers. Median means the number that is in the middle of all the numbers that you have.

Materials and Methods

- Two dice
- A platform to roll the dice on
- Pen
- Paper

Two dice were thrown 100 times and each time the number and the total were recorded.

Results

After rolling the dice 100 times, seven came up the most. The reason behind that is because seven is the median between two and twelve. (See figure 1 and 2) The chances of getting number seven are higher than any other number. It was proven by the article *The probability Distribution of the sum of Several Dice: Slot Application (P. 112, Table 1)*. They proved that the chances of getting number seven are the highest.

Number	2	3	4	5	6	7	8	9	10	11	12	Total
Frequency	4	9	3	12	13	18	14	12	7	4	4	100

Figure 1

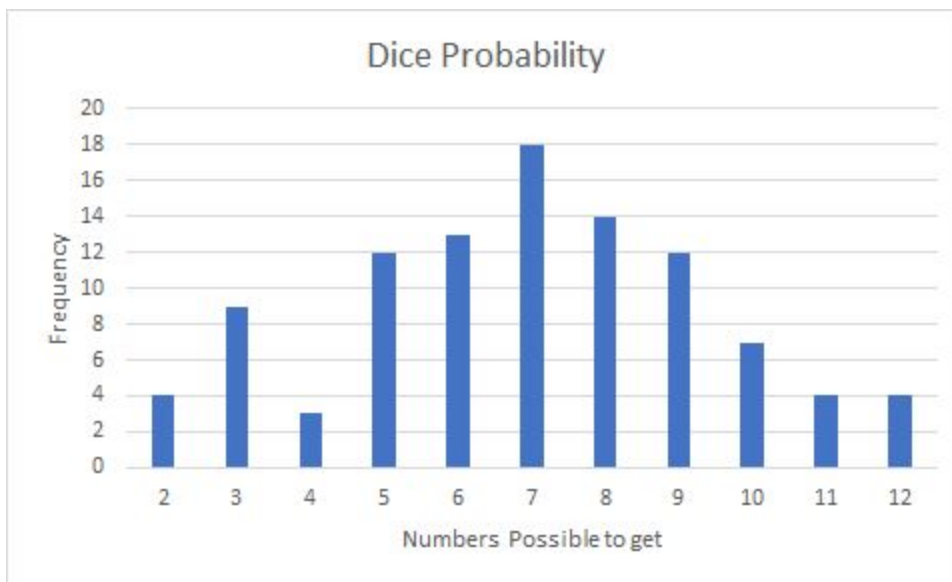


Figure 2

The x-axis represents the numbers that are possible to get. The y-axis represents the time those numbers came up.

Analysis

When two dice were thrown the number seven happen to come up the most. That is because the number seven is the median from two to twelve. My hypothesis was that the numbers from 6-9 will come up the most and it was true. The numbers from five to nine came up the most. According to *The probability Distribution of the sum of Several Dice: Slot Application* (P. 112, Table 1) we can see that the chances of getting a number from five to nine are greater than any other number. That is the reason why in this experiment the numbers from five to nine came up the most. Also, according to Susan Holmes from Stanford University, her chart shows that the chanced of getting a number form five to nine is grater than getting any other number.

Conclusion

Two dice were thrown 100 times and the results for them were recorded. The numbers between five and nine came up the most. As you can see, there is a higher percentage of getting a number between 5 and 9 than any other number because it is the middle from two to twelve.

Sources

Ashok K. Singh\ Rohan J. Dalpatadu\ Anthony F. Lucas'. October 1, 2011, *The probability Distribution of the sum of Several Dice: Slot Application*.
<https://web-a-ebSCOhost-com.ccny-proxy1.libr.ccny.cuny.edu/ehost/pdfviewer/pdfviewer?vid=1&sid=c1458c7e-ef78-4a39-938a-53536d45222a%40sdc-v-sessmgr02>

Susan Holmes, November 12, 2000, *Probability for the two dice*,
<http://statweb.stanford.edu/~susan/courses/s60/split/node65.html>

Appendix

Total	Number of combinations	Probability
2	1	2.78%
3	2	5.56%
4	3	8.33%
5	4	11.11%
6	5	13.89%
7	6	16.67%
8	5	13.89%
9	4	11.11%
10	3	8.33%
11	2	5.56%
12	1	2.78%
Total	36	100%

Susan Holmes, November 12, 2000, *Probability for the two dice*,
<http://statweb.stanford.edu/~susan/courses/s60/split/node65.html>

