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## "Magic in a Box"

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## "Magic in a Box"

*Excerpted with permission from  
The Magic of Math  
by Lacie Juris  
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I have discovered that there are many "magical" qualities involved in numbers and their arrangements. At the beginning of this course I was given a very intriguing puzzle which has been passed down through the ages of mathematics. It is called the Magic Square. The goal is to create a square of equal proportion (3x3, 4x4, etc.) made up of numbers whose sums, from any direction, equal the same number vertically, horizontally, and diagonally. I was allowed to make it as large or small as I desired. Wishing to be different from the rest of the class, I took up the challenge of creating a 5x5 magic square.

Logic and strategy have never been among my strong points. In fact, in ordinary circumstances I will do whatever it takes to avoid them at all cost. However, I had only to look at the now-monumental square awaiting its 25 numbers to see that random guessing was not going to be even a remote possibility within my time frame. I decided that a little research was necessary in order for me to better understand the creation of the magic square. After a search of the Internet, I was able to find a website containing dozens of different examples. My main "strategy" at this point was to pick out as many common patterns between the examples as I could which might give me a clue in how to construct my own. Surprisingly enough, it didn't take me too long to discover a common similarity in many of the 5x5 squares. Most of the numbers seemed to wrap around the square as if it were bent into a spherical shape like a pillar. With this observation in mind, I attempted my own square.

For no particular reason, I decided to place my first number (1) in the bottom row, middle column. Number 2 then went in the top row, second column from the right. I wanted to make the numbers wrap around the square while angling downward diagonally. Since 2 could not be placed lower than 1, I went back to the top and moved over one column to the right. The figures 3, 4, and 5 continued in the spiraling pattern. When I reached 6, I could no longer go down because

number 1 already occupied the space. After a great deal of pondering, I found it was possible to move 6 to the space directly above 5 and then continue on with the pattern. I utilized this move whenever another number blocked a needed space. Finally, after three hours, I triumphantly placed the last number (25) in the top row, middle column and the puzzle was complete! Every row, column, and diagonal added up to exactly 65.

Overall, I have learned more during the completion of this assignment than I ever expected. I have discovered the challenge and fascination of mathematical puzzles and felt the thrill in finding the solution. I have also discovered the great importance of logic, patterns, and observations. It is hard to even imagine the possibilities of solving a puzzle of this size by random chance. This project stretched my critical thinking skills by forcing me to study the puzzle and create a logical strategy to solve it. Once I had discovered the pattern, the entire mystery came to a victorious conclusion in mere seconds. I have finally unlocked the "magic" in the box!

11	18	25	2	9
10	12	19	21	3
4	6	13	20	22
23	5	7	14	16
17	24	1	8	15