The Tower of Hanoi is a puzzle invented by French Mathematician Edouard Lucas in 1883. It consists of three pegs and a series of rings. The pegs are all the same size while the rings are all different sizes. At first, the rings are stacked on one peg in order from the largest ring at the bottom to the smallest ring at the top (the figure shows an arrangement with seven rings). The point of the puzzle is to transfer all of the rings to another peg (one by one) and count the number of moves you need to do it. On the new peg, the rings must once again be in the order of largest on the bottom to smallest at the top. There are two rules for transferring the rings:

1. Move only one ring at a time;
2. Never place a larger ring on top of a smaller ring.

There is a smallest number of moves it takes to transfer all the rings. This minimum number gets larger as you add more rings, but it follows a nice pattern (that's a hint!).

Imagine a Tower of Hanoi puzzle with 38 rings, which is much more than is normally used. Your task is to solve the following problem:

First, calculate the minimum number of moves it would take to transfer the 38 rings to another peg using the above rules. Next, imagine having that number of pennies piled into a single stack!

How high would this stack of pennies be? To receive credit on this problem, you need to provide a reasonable height and an explanation of how you calculated it! Good luck!