

Math 353 Homework #7- Due Wednesday 10/26/14

1. 7.2.1B

2. 7.2.2B

3. 7.5.2B

4. The "tower of Hanoi" is a puzzle consisting of 3 vertical posts mounted on a board and some number n rings of different diameters. In standard form all rings are stacked on one post in order with the largest ring on the bottom. A solution consists of first choosing a second post on which the rings are to be stacked, then moving the rings from post to post in such a way that a larger ring is never placed on top of a smaller ring. The goal is to get all the rings to the second post. Let a_n be the minimum number of moves to solve a puzzle with n rings.

a. Explain why $a_{n+1} = 2a_n + 1$.

b. Find the number of moves needed for n rings. In particular what if $n = 5$.

5. 8.1.1B

6. 8.1.3B