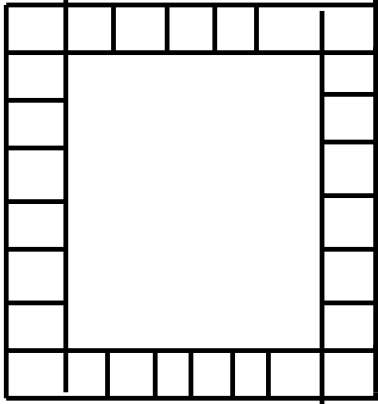


21-301 Combinatorics
Homework 9
Due: Monday, December 3



1. How many ways are there of k -coloring the squares of the above diagram if the group acting is e_0, e_1, e_2, e_3 where e_j is rotation by $2\pi j/4$. Assume that instead of 28 squares there are $4n - 4$.
2. How many ways are there of k -coloring the squares of the same diagram if the group acting is $e_0, e_1, e_2, e_3, p, q, r, s$ where p, q, r, s are horizontal, vertical, diagonal reflections.
3. How many ways are there to arrange 2 M's, 4 A's, 5 T's and 6 H's under the condition that any arrangement and its reversal are to be considered the same.