Math 353 Homework #12- Due Monday 12/12/16

1. 17.1.1B

2. 17.1.3B

3. 17.1.5B

4. Let M_n be an $n \times n$ board which is all white except the squares on the main diagonal, the squares directly above the main diagonal, and the lower left square are removed. Find the rook polynomial for M_4 and M_5.
Bonus: Can you come up with a recursion?

5. 17.2.2B

6. Recall the board Δ_n is the diagram corresponding to the partition $(n-1, n-2, \ldots, 2, 1)$. Recall in class we proved the Stirling number of the second kind, $S(n, k)$, calculates the number of ways to place $n - k$ nonattacking rooks on Δ_n. If we define a "wrook" as like a rook but only attacking horizontally, show the corresponding result for the Stirling numbers of the first kind.