

MATH 636, Fall 2015

HOMEWORK 3

To be prepared for presentation on Tuesday, September 8.

Background reading: Combinatorics: A Guided Tour, Sections 1.2 and 2.2.

Only consult with your classmates or professor to discuss the problem set.

We will discuss solutions to these questions in class.

3-1. Answer each of the following jeopardy questions by giving a “real world” situation that could be counted by the given quantity.

- Exercises 1.2.1abcd, 2.1.1c, 2.2.1acd

3-2. In chess, a rook is a piece that can move only vertically and horizontally. Therefore, two rooks attack each other if they are placed in the same row or in the same column. A non-attacking configuration of rooks consists of placing some number of rooks on a chessboard so that no pair of rooks attack each other. Determine the number of non-attacking configurations of five indistinguishable rooks on an 8×8 chessboard.

3-3. Exercise 2.2.8