

Math555 Homework 7

Note: To submit the k -th homework, simply put your files in the folder `HWk` on CoCalc, and it will be collected on the due day.

1. Suppose x_n is an integer for every $n \geq 1$ and

$$y_n = \sum_{d|n} x_d.$$

If $y_n = n^2$ for every $n \geq 1$. Use Möbius inversion to find x_{36} and x_{1000} . You can either do it by hand or by computer. (Send me your code in the latter case.)

2. Use Sage to write a function that takes two inputs k and B and returns the number of ways to put k rooks on the board B in non-attacking positions. See the file `SageProject2_blank.sagews` in your CoCalc folder.