

Math555 Homework 14 [Optional]

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. Consider the poset D_8 . Find the matrix forms of the zeta function and the Möbius function on D_8 , using $\{1, 2, 4, 8\}$ as the index of the matrix.
2. Use Sage to write two functions `zeta_func(n)` and `moebius_func(n)`. Given a fixed n , `zeta_func(n)` should return the matrix form of the zeta function on D_n , and `moebius_func(n)` should return matrix form of the Möbius function. Note that D_n consist of all factors of n , and they are the indices of the rows/columns. As long as the row indices and column indices are following the order of the natural numbers, the output matrix will be upper-triangular. See the file `SageProject9_blank.sagews` in your CoCalc folder.