

## HOMEWORK 1 - DUE TUES. JAN. 25

- 1.) Write a table with the orders of elements in  $\mathbb{Z}/13\mathbb{Z}$ ,  $\mathbb{Z}/15\mathbb{Z}$ ,  $\mathbb{Z}/16\mathbb{Z}$ .
- 2.) Prove that the order of an element in  $\mathbb{Z}/n\mathbb{Z}$  divides  $n$ .
- 3.) Find a formula for the order of an element in  $\mathbb{Z}/n\mathbb{Z}$ .
- 4.) What is the relationship between  $\mathbb{Z}/n\mathbb{Z}$  and the group of rotations of a regular  $n$ -gon in the plane ?