

## Part II of M1, term - CS/Ma 503

- Given a specific value of  $p$ , find all the generators of  $\mathbb{Z}_p^*$ , one generator  $\mathbb{Z}_{p^3}^*$  and one generator of  $\mathbb{Z}_{p^3}^*$ . Also for  $d|p-1$  find # elements of order  $d$  and one such element
- Given an integer  $n$  s.t.  $\mathbb{Z}_n^*$  is cyclic find all the subgroups and draw a picture of the hierarchy
- A problem from the Congruence exercises
- A proof from facts about rings, e.g.  $(-1)(-1) = 1$  if  $1$  is a multiplicative identity in a ring
- Proof of handy-dandy formula
- Problems selected from the exercises

Mod I / 3b, f ; 5b ; 6b

Mod II / 4 , 10b, 10c

Mod III / 2