

**Fall 2022, Math 522: Preliminary Problem Set 12**  
**Due: Friday, November 18th, 2022**  
**Quadratic Residues**

**Preliminary problems.** These problems should be completed before discussion.

(P1) Find all quadratic residues modulo 11.

(P2) Find  $\left(\frac{a}{11}\right)$  for  $a = 0, 1, \dots, 10$ .

(P3) Write down the formulas for  $\left(\frac{-1}{p}\right)$  and  $\left(\frac{2}{p}\right)$  from class (these will be useful both during discussion **and** when working on the homework).