Dr. Z.'s Number Theory Homework assignment 20

1. By 'brute force', Find the set of quadratic residues, and the set of quadratic non-residues of the following primes.

a. $p = 19$ **b.** $p = 23$ **c.** $p = 31$

2. Using the important test (no credit for brute force!) find

a. $\left(\frac{7}{19}\right)$ **b.** $\left(\frac{17}{23}\right)$ **c.** $\left(\frac{3}{29}\right)$

3. Using the Quadratic Reciprocity Law and Rules 1-3, find (no credit for other methods)

a.

$$\left(\frac{7}{11}\right)$$

b.

$$\left(\frac{41}{61}\right)$$

c.

$$\left(\frac{19}{97}\right)$$