

## Quiz 5

Name:

Answer all of the following questions by hand:

1. For each of these either find the answer or state if it does not exist:
  - (a) Inverse of 3 mod 10.
  
  
  - (b) Inverse of 4 mod 10.
  
2. Compute  $[23^{61} \bmod 7]$ .
  
  
3. Compute  $[46^{51} \bmod 55]$ . (Hint: Use the Chinese Remainder Theorem)
  
  
4. Let  $G = \mathbb{Z}_{11}^*$ 
  - (a) Compute the set  $\langle 2 \rangle$
  
  
  - (b) Compute the set  $\langle 4 \rangle$
  
  
  - (c) Are all elements of  $G$  generators of  $G$ ?