Homework-Assignment 2 Name: ________________________________

Please staple your work. Write-up your solution carefully including all the details of the proof. Due Wednesday June 30.

1. (5 points)
   Let \( z = 1 - \sqrt{3}i \). Compute \(|z|, \overline{z}, z^{20}\).

2. (5 points) Solve the equation \( z^4 = i \).

3. (5 points)
   Show that if \( a \mid m \), \( b \mid m \) and \((a, b) = 1\), then \( ab \mid m\).

4. (5 points)
   Let \( A \) be a finite set and \( f : A \to A \) an injective function. Prove that \( f \) is onto.

5. (5 points) (for graduate students only) Show that any integer \( n \geq 2 \) it is either prime or it has prime factor \( \leq \sqrt{n}\).