

## ASSIGNMENT 2

DUE SEPTEMBER 10 AT 5:00PM

Let  $S$  be a finite set. Prove that a function  $f : S \rightarrow S$  is onto if and only if it is one-to-one. Write this up in L<sup>A</sup>T<sub>E</sub>X as a theorem and proof. Then demonstrate why neither direction of your theorem is true if  $S$  is infinite. Write these counterexamples as a discussion after the end of your proof.