MA 351: (PART OF) THE ASSIGNMENT DUE OCTOBER 30, 2013

- (1) For each of the following relations on \mathbb{Z} , determine whether it is an equivalence relation. If it is find the partition it defines.
 - (a) $x \sim y$ if x < y.
 - (b) $x \sim y$ if $x \leq y$.
 - (c) $x \sim y$ if |x| = |y|.
 - (d) $x \sim y$ if $x \neq y$.
 - (e) $x \sim y$ if xy > 0.
- (2) Let $f: A \to B$ be a surjective function. Define a relation on A by $a \sim a'$ if f(a) = f(a'). Show this is an equivalence relation.

Date: October 25, 2013.