## 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 $x y>0$.
(2) Let $f: A \rightarrow B$ be a surjective function. Define a relation on $A$ by $a \sim a^{\prime}$ if $f(a)=f\left(a^{\prime}\right)$. Show this is an equivalence relation.

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[^0]:    Date: October 25, 2013.

