

Your Name:

Duration of the Quiz is 20 minutes. There are two problems, worth 20 points. Show all your work for full credit. Books, notes etc. are prohibited. Calculators are NOT permitted.

1. Determine whether the relation R on the set of all integers is reflexive, symmetric, transitive, irreflexive, antisymmetric, and/or asymmetric, where $(x, y) \in R$ if and only if $x \neq y$.

2. Define a relation \sim on \mathbb{Z} as follows: For $x, y \in \mathbb{Z}$, we say $x \sim y$ if and only if $|x| = |y|$.

(a) Prove that \sim defined above is an equivalence relation on \mathbb{Z} .

(b) Give the equivalence class of a general number $n \in \mathbb{Z}$.