

Worksheet 9.6

Max's Lecture
MATH 55

July 31, 2019

Exercise A. For the two equivalence relations in the exercise above, describe all equivalence classes.

1. $a = b$ or $a = -b$
2. $x \equiv y \pmod{7}$

Exercise B. Determine whether the relation R on the set of all positive integers is an equivalence relation, where $(x, y) \in R$ if and only if:

1. $x = y$
2. $x < y$
3. $x|y$
4. $x \leq y$

Exercise C. For each of the following posets, let A be a subset of the elements. Give a description of the greatest lower bound of A and the least upper bound of A . It may help to sketch a Hasse Diagram!

1. S is the power set of a set of n elements, and the subsets in the power set are ordered by containment.
2. (\mathbb{Z}^+, \leq)
3. $(\mathbb{Z}^+, |)$