

# Universal Algebra 1 - Homework 2

Deadline 16.11.2021, 17:20

1. Determine all the subalgebras and congruences of  $(\mathbb{N}, *)$  where  $x * y = \max(x, y) + 1$ . Draw the lattices Sub and Con. ( $\mathbb{N}$  consists of the natural numbers without 0.)
2. Let  $\mathbf{G}$  be a group. Prove that there is a lattice isomorphism between the lattice of normal subgroups of  $\mathbf{G}$  and the lattice of congruences of  $\mathbf{G}$ .