HOMEWORK 1

SET THEORY

▶ **1** (Jech: 1.1). Prove: $(a, b) = (c, d)$ if and only if $a = c$ and $b = d$.

▶ **2** (Jech: 1.2). Prove: there is no set X such that $\mathcal{P}(X) \subseteq X$.

▶ **3**. Verify: if $a \in A$ and $b \in B$ then $(a, b) \in \mathcal{P}\big(\mathcal{P}(A \cup B)\big)$ and $a, b \in \bigcup(a, b)$.

▶ **4**. Write out in full (no abbreviations) a formula that expresses
    (1) "z is an ordered pair".
    (2) "z is an ordered pair and x is its first coordinate".