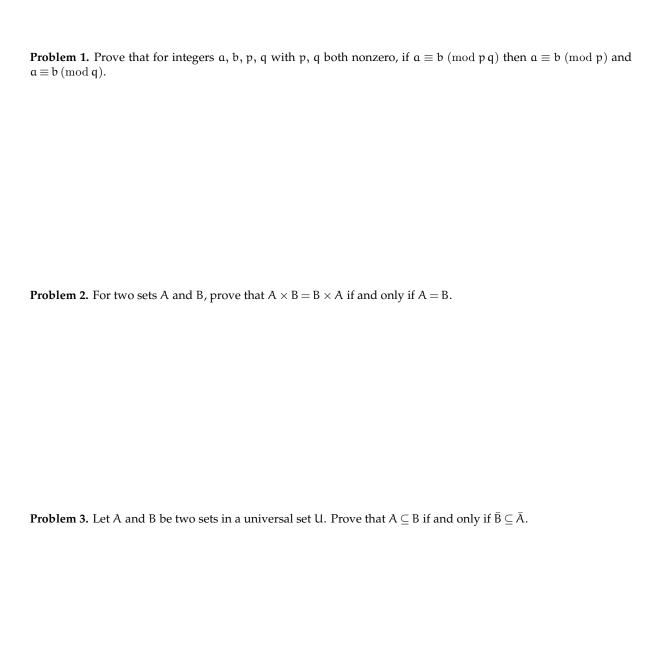
Homework 5 [Due 10/01]



Bonus problems: (You don't have to do these) you can pick one.
Problem 4. (Bonus) Prove that
$igcap_{\mathrm{k} \in \mathbb{R}^+} (-\mathrm{x}, \mathrm{x}) = \{0\}$
where \mathbb{R}^+ is the set of all positive real numbers. Prove y
Problem 5. (Bonus) Consider the statement "For any given $L > 0$, there exists a natural number n such that $x_i > L$ for all $i > n$ ".
• Rewrite the statement using symbols such as \forall and \exists .
Write down the negation of the statement in words.
• Consider the sequence given by $x_i = \log i$ for $i \in \mathbb{N}$. When applied to this sequence, is the above statement true?

Problem 6. Write a computer program (in any programming language) that construct the power set of a given set. (Print the source code on a separate piece of paper)