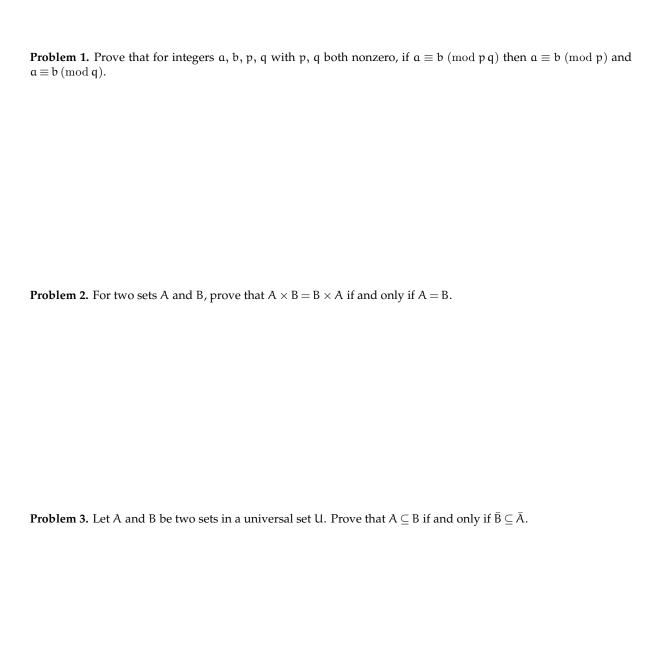
Homework 5 [Due 10/01]



Bonus problems: (You don't have to do these) you can pick one.
Problem 4. (Bonus) Prove that
$\bigcap (-x,x) = \{0\}$
$x \in \mathbb{R}^+$
where \mathbb{R}^+ is the set of all positive real numbers.

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)