Homework #5. Due: Thurs 10/12

1. Explain in your own words why the empty set is a subset of every set.

2. Explain in your own words why two sets x and y are equal just when it's the case that *both x is a subset of y and y* is a subset of x.

3. Explain why the union set $\bigcup \wp(x)$ of the power set $\wp(x)$ of a set x is just x itself. (*Hint*: Make sure you understand what the powerset $\wp(x)$ of a set x is, and what the union set $\bigcup x$ of a set x is. Consult the lecture notes and the accompanying diagrams for help.)

4. Suppose $x = \{\{1\}\}$. What is $\bigcup x$? What is $\wp(x)$? What is $\wp(x) \bigcup x$?

5. Suppose x is a finite set with m members. How many members are in $\wp(x)$?