

**Homework Assignment #7**  
**Due: March 16, 2011 at 2:30 p.m.**

1. Is  $\mathbb{N} \times \mathbb{N}$  countable? Prove your answer is correct.
2. Is  $\mathcal{P}(\mathbb{N})$  countable? Prove your answer is correct.  
(Recall that if  $S$  is a set,  $\mathcal{P}(S)$  is the power set of  $S$ .)