Homework 12 due April 25

- 1. You need to know: definition of a limit of a sequence (both versions).
- 2. Solve the inequalities:
 - (a) |x+1| < 0.01;
 - (b) |x| > |x+1|;
 - (c) $||x+1| |x-1|| \le 1$.
- 3. What happens if we reverse the order of quantifiers in the definition of convergent sequence? Definition: A sequence $a_1, a_2, ..., a_n, ...$ vercoges to x if there exists an $\epsilon > 0$ such that for all $N \in \mathbb{N}$ it is true that $n \ge N$ implies $|x_n x| < \epsilon$.
 - (a) Give an example of vercongent sequence.
 - (b) Can you give an example of vercongent sequence that is divergent?
 - (c) What exactly is being described in this strange definition?
- 4. Do problems 64a,b from the problem set by Dr. Richardson.