In-Class Assignment 2

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1 Problem 1

Prove that 1 and -1 are limit points for the sequence $x_n = (-1)^n$.

Proof:

2 Problem 2

Prove that x is a limit point for the sequence x_n if and only if there is a subsequence x_{n_k} that converges to x.

Proof:

3 Problem 3

Let x_n be a bounded sequence. Prove that $\limsup x_n$ is the largest limit point of the sequence x_n. That is, prove that if z is a limit point of x_n then $z \leq \limsup x_n$.

Proof: