Homework 4

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Problem 1 3.2.3 Problem 1

Let A be an open set. Show that if a finite number of points are removed from A the remaining set is still open. Is the same true if a countable number of points are removed?

Problem 2 3.2.3 Problem 4

Let A be a set and x a number. Show that x is a limit point of A if and only if there exists a sequence $x_1, x_2, ...$ of distinct points in A that converges to x.

Problem 3 3.2.3 Problem 5

Let A be a closed set, x a point in A, and B be the set A with x removed. Under what conditions is B closed.