M 383: Assignment 5

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Exercises 3.2.3 — Problem 1

Problem. 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?

Proof.

Exercises 3.2.3 — Problem 4

Problem. 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.

Proof.

Exercises 3.2.3 — Problem 5

Problem. 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?

Proof.