

Problem 1

Dr. Cuchta – presenter

Dawn Sargent – writer

Sydney Maibach – checker

Show if $M = (a, b)$ and $p \in M$, then p is a limit point of M .

PROOF: Let (c, d) be an open interval such that $p \in (c, d)$.

Case 1: If $c > a$, by Axiom 3, there is a point $x \in (p, c)$.

Since M is an open interval and $a < x < c$, then $x \in M$.

Thus, p is a limit point of M .

Case 2: If $c < a$, by Axiom 3, there is a point $x \in (a, p)$.

Since (a, p) is inside of (c, p) , $x \in M$.

Thus, p is a limit point of M .