Problem 4: Show that if M is the set of all positive integers, then no point is a limit point of M.

Solution: Since M is the set of all positive integers, M = {1, 2, 3, 4, …}. Let there exist an open interval (a, b) containing the point n. (a, b) = (n-1, n+1). So n > n-1 and n < n+1. Since n-1 and n+1 are endpoints of the open interval they are not included in the interval. This means n is the only point in open interval because there are no positive integers in between the points n-1 and n, and there are no points in between n and n+1. Therefore, no point of M is a limit point.