Astronomer Cal Sagan Discovered from smoke filled telescopic lenses, a planet with billions upon billions of moons call that number N moons, including multiplicity, which he termed “fuzzy” moons. He came up with a 2-dimensional experimentally based model of this with |z|≤1 representing the planet and the location of moons given by the roots of $Z^{n}$ + $a\_{N+1}Z^{N-1}………. +$ $a\_{1}$Z + $a\_{0}$ = 0 in the Complex-plane with |$a\_{0}$|>1 + |$a\_{N-1}$| + ……… + |$a\_{1}$| and $2^{N}>$ |$a\_{N-1}$|$2^{N-1}$ + |$a\_{N-2}$|$2^{N-2}$ + ……+|a|2 + |$a\_{0}$|.

He couldn’t quite figure out why all of his moons lied in this region. Show using Rouche’s Theorem that all the N moons lie in 1 $<|Z|>2$