Directions. Please submit your answer to the following problem in a \LaTeX-
prepared document. Class participants are encouraged to prepare solutions
in a collaborative mode but to prepare their to-be-submitted write-ups in-
dividually. The consequences of sharing files, electronic or otherwise, are
discussed in the course syllabus.\footnote{If the wording of this problem was discussed in detail in the classroom, the course
instructor expects to see similar phrases and sentences in reading the submissions.}

Please include the problem number along with a statement of the problem
in your submission. Please also include your e-mail address.

Recall that a point $x$ in a metric space, $M$, is a limit point of a subset $S$
of $M$, if every open ball containing $x$ contains an infinite number of points
of $S$. (This is equivalent to the definition of a limit point given in the Notes.)

**Problem.** Prove that an infinite subset of a compact metric space has at
least one limit point.