Directions. Please submit your answer to the following problem in a L\textsc{a}T\textsc{e}X-prepared document. Class participants are encouraged to prepare solutions in a collaborative mode but to prepare their to-be-submitted write-ups individually. 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.

\textbf{Problem.} Let $S$ be a subset of a metric space, $M$. Prove that $S$ is closed if and only if the limit of every sequence in $S$ (that converges in $M$) belongs to $S$. 
