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 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.

**Problem.** Prove that a single point in \( \mathbb{R} \) (with the metric defined by the absolute value function) is not an open subset of \( \mathbb{R} \). Is it true that in every metric space a single point is not an open set? Explain.