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. Recall that \( x \in B \setminus A \) if and only if both \( x \in B \) and \( x \notin A \). That is, \( B \setminus A = \{x : x \in B \land x \notin A\} \).

Let \( A, B \) and \( C \) denote subsets of a set, \( U \). Prove that

\[
(A \cap B) \setminus C = A \cap (B \setminus C).
\]