CSE 390Z: Mathematics for Computation Workshop

QuickCheck: Set Theory Proof (due Monday, October 30)

Please submit a response to the following questions on Gradescope. We do not grade on accuracy, so please submit your best attempt. You may either typeset your responses or hand-write them. Note that hand-written solutions must be legible to be graded.

We have created **this template** if you choose to typeset with Latex. **This guide** has specific information about scanning and uploading pdf files to Gradescope.

0. Set Proof: A Complement Makes all the Difference

Consider the following statement: For sets A, B,

$$A \cap \overline{(A \setminus B)} = A \cap B$$

Prove the statement using a subset proof in each direction.

1. Video Solution

Watch the first 16:20 minutes of **this video** on the solution **after** making an initial attempt. Then, answer the following questions. Note that this video, after timestamp 16:20, goes over a different approach to prove set equality. This is a valid and correct solution, but in 311, you are encouraged to prove equality using a subset proof in each direction. You are welcome to watch the whole video to see the different approach, but do not have to watch past 16:20.

(a) What is one thing you took away from the video solution?

(b) What topic from the quick check or lecture would you most like to review in workshop?