

## CSE 390Z: Mathematics for Computation Workshop

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### QuickCheck: Set Theory Proof

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  $A, B$ ,

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

- (a) Prove the statement using a subset proof in each direction.
- (b) Prove the statement by doing a chain of equivalences proof.

#### 1. Video Solution

Watch [this video](#) on the solution **after** making an initial attempt. Then, answer the following questions.

- (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?