

CSE 390Z: Mathematics for Computation Workshop

QuickCheck: Predicate Logic (due Monday, April 21)

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. English to Logic Translation

Translate the following English statements to predicate logic:

Domain of Discourse: $D := \text{"Mammals"}$

Predicates:

$\text{Walks}(x, y)$	$:=$	" x walks y "
$\text{Dog}(x)$	$:=$	" x is a dog"
$\text{Human}(x)$	$:=$	" x is a human"
$\text{Friends}(x, y)$	$:=$	" x and y are friends"

- (a) Humans are not friends with each other.
Note that this means a human is also not friends with themselves
- (b) All humans are friends with the dogs that they walk.
- (c) Every human walks exactly one dog.

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?