

PHIL 2000: Philosophical Tools

Homework #1

YOUR NAME: _____

Instructions: This is **not** a group assignment. You may **not** discuss these questions with other students in this class, or with anyone else (except me, for example, in office hours). You may use the course textbook to answer these questions. You may look up the answer to the first True/ False question on the internet if you want to, but please try to think about the question first. Due date: 9 February at the beginning of class. I **cannot** accept it later, as we will go over the questions in class.

1. True or False? Circle 'T' if the statement is true, and 'F' if it is false. (Hint: Do the reading!)

- | | | |
|---|---|--|
| T | F | In binary notation, $1 = 0.111\dots$ |
| T | F | There exists a set S that can be paired one-to-one with its power set. |
| T | F | The rational numbers are the same size as the power set of the natural numbers. |
| T | F | According to standard set theory, the numerical size of the real numbers is the next highest number after the numerical size of the natural numbers. |

2. Write names for the following sets in extensive notation:

(a) $\{\text{Hong Kong, London, New York}\} \cap (\{\text{London, Sydney}\} \cup \{\text{Sydney, Tokyo}\})$

NAME:

(b) $\{x: x \text{ shaves everyone who doesn't shave themselves}\}$

NAME:

3. Write two *different* names for the following set, both in intensive notation. (Hint: Michael Johnson is the instructor of this class.) (Hint #2: Problem continued on next page.)

$\{\text{Michael Johnson}\}$

NAME 1:

NAME 2:

4. Write the power set of the following sets:

(a) $\{\{\{\}\}\}$

POWER SET:

(b) $(\{\text{Hong Kong, London, New York}\} \cap \{\text{London, Sydney}\}) \cup \{\text{Sydney, Tokyo}\}$

POWER SET:

5. What are your thoughts on the continuum hypothesis? Does it seem true to you? Does it seem false? Do you think it's possible to know whether it's true or false? (Hint: you don't need to agonize and write a long essay. I will give full marks to **any** response. I'm just curious to know what you think.)