

# Worksheet 3 Review

March 20, 2020

## Question 1

- a.  $Correct(my\_prog) \wedge Python(my\_prog)$
- b.  $\exists x \in P, \neg Correct(x) \Rightarrow Python(x)$
- c.  $\forall x \in P, Python(x) \Rightarrow \neg Correct(x)$
- d.  $\forall x \in P, \neg Correct(x) \Rightarrow Python(x)$
- e. There is a program that is written in Python and is correct.
- f. Every program is not written in Python and is correct.
- g. There is a program that is correct but is not written in Python.
- h. All running programs not written in Python are correct, and all correctly running programs are not written in Python.

## Question 2

- a. All programs written in Python is correct, or all program written in python is not correct.
- b.  $(\exists x \in P, Python(x) \Rightarrow Correct(x)) \Rightarrow (\forall y \in P, Python(y) \Rightarrow Correct(y))$

**Correct Solution:**

$$(\exists x \in P, Python(x) \wedge Correct(x)) \Rightarrow (\forall y \in P, Python(y) \Rightarrow Correct(y))$$

- c.  $x_1$  and  $x_2$  in first statement could have different values. Where as the  $x$  in second statement has the same value.

The first statement is true, but the second is false. Assume  $x$  is divisible by 7. Then, 165 must be divisible by 7, but this is false.

**Question 3**

**Question 4**

**Question 5**