

Worksheet 2 Solution

March 10, 2020

Question 1

a) $x = Aizah, y = Aizah$ is one solution.

Yes. There is more than one answer. Take example
 $x = Carlos, y = Carlos$

b) $x = Aizah, y = Betty$ is one solution.

Yes. There is more than one answer. Take example
 $x = Ellen, y = Flo$

c) The statement is true

| x | y | $rich(x) \wedge sameDept(x, y)$ |
|--------|--------|---------------------------------|
| Aizah | Aizah | True |
| Betty | Aizah | True |
| Carlos | Carlos | True |
| Doug | Aizah | True |
| Ellen | Ellen | True |
| Flo | Ellen | True |

d) False. Consider example $x = Ellen, y = Carlos$

Question 2

- a) $\forall x \in \mathbb{R}, f(x) = 10$
- b) $\forall y \in \mathbb{R}, \exists x \in \mathbb{R}, f(x) = y$ where $f : \mathbb{R} \rightarrow \mathbb{R}$
- c) A counter example : $x^2 = -1$

Question 2

- a) $S = \{ n \mid \forall n \in \mathbb{N}, n > 3 \}$
- b) Predicate $P(n)$ is $n > 3$