

Worksheet 6 Review

March 24, 2020

Question 1

a. $\forall n \in \mathbb{N}, P(123) \wedge \neg(n > 123 \Rightarrow P(n))$

Correct Solution:

$$P(123) \wedge (\forall n \in \mathbb{N}, P(n) \Rightarrow n \leq 123)$$

b. $IsCD(x, y) : \exists x, y, d \in \mathbb{Z}, d \mid x \wedge d \mid y$

$$IsGCD(x, y) : \exists x, y, d \in \mathbb{Z}, d \mid x \wedge d \mid y \wedge (\forall n \in \mathbb{N}, n > d \Rightarrow n \nmid x \vee n \nmid y)$$

Correct Solution:

$$IsGCD(x, y, d) : \exists x, y, d \in \mathbb{Z}, (x = 0 \wedge y = 0 \Rightarrow d = 0) \wedge (x \neq 0 \vee y \neq 0 \Rightarrow IsCD(x, y, d) \Rightarrow \forall d' \in \mathbb{Z}, IsCD(x, y, d') \Rightarrow d' \leq d)$$

c.

Question 2

Question 3