

# Worksheet 4 Solution

March 13, 2020

## Question 1

- a.  $\exists n \in \mathbb{N}, (n > 3) \wedge (n^2 - 1.5n \geq 5)$
- b. The variable is existentially quantified
- c. Concrete natural number
- d. Let  $n = 5$ .  
Then,

$$(5)^2 - 1.5(5) \tag{1}$$

Then,

$$25 - 7.5 \tag{2}$$

Then,

$$17.5 \tag{3}$$

which is greater than 5. So, the statement is True

- e.  $\forall n \in \mathbb{N}, n > 3 \Rightarrow n^2 - 1.5n > 4$   
Here  $\Rightarrow$  should be used because  $n > 3$  is a given, and we are using it to show that the statement  $n^2 - 1.5n > 4$  is True
- f. The variable is universally quantified