

Exploration 17

Math 2001–002, Fall 2016

October 26, 2016

Question 1. Prove that the sets \mathbb{N} and \mathbb{Z} are not the same.

Question 2. How many elements does the following set have:

$$\{1, 3, 3, 5, 5, 5\}$$

Question 3. List the elements of the following set:

$$\{x \in \mathbb{Z} : \exists y, x = 3y \wedge -5 \leq x \leq 9\}$$

Question 4. Prove the following statement:

$$\{x \in \mathbb{Z} : \exists y \in \mathbb{Z}, x = 2y\} \cap \{x \in \mathbb{Z} : \exists y \in \mathbb{Z}, x = 2y + 1\} = \emptyset$$

Question 5. Prove the following statement:

$$\{x \in \mathbb{Z} : \exists y \in \mathbb{Z}, x = 2y\} \cup \{x \in \mathbb{Z} : \exists y \in \mathbb{Z}, x = 2y + 1\} = \mathbb{Z}$$