Quiz 5 — MGF 3301 Intro. to Adv. Math

Student's Name:_____ E. Hironaka

February 6, 2014

This is a 30 minute quiz. Discuss the problems in your group, and then write down your own answer. You may also use the back side of the quiz if you need more space for your answer.

1. Which of the following statements is true?
   (a) $\{1, 2, 3\} \in \mathbb{Z}$
   (b) $\emptyset \in \emptyset$
   (c) $\mathbb{Z} \subseteq \mathbb{R}$.

2. Write down an English everyday sentence of the form $x \in A \cup B$. Specify the sets A and B clearly using proper set notation and mathematical sentences.

3. Let A be the set of people who speak Spanish, and let B be the set of people who live in Spain. Translate the following into English sentences.
   (a) $\exists x \in A \cap B^c$
   (b) $\exists x \in A^c \cap B$
   (c) $B \subseteq A$
   (d) $A \subseteq B$