Important Announcement: The first test has been rescheduled for Monday, September 13. The test will cover the material from Chapter 2. Problem Set 1 (the boxed problems from Chapter 2) is due on Friday, September 10.

The Handshake Problem: Five couples (including the Host and the Hostess) were at a party. Some people shook hands with other guests. No one shook hands with themselves, and no one shook hands with his or her own spouse. At the end of the party the Host asked all the other people how many hands they shook. One person didn’t shake any hands, someone else shook exactly one hand, someone else shook two hands, someone else shook three hands, and so forth, down to the last person, who shook eight hands. Determine how many hands the Hostess shook.

Journal Prompts: Respond to the following in your learning journal. Strive to use correct mathematical language and notation, and feel free to comment on your thought process while considering a problem. Some problems may take more than one attempt to solve; do not get discouraged! Entries 1–4 are due September 1.

1. What are your goals for Math 201 this semester?

2. Write your math autobiography. What are the most notable events in your mathematics experience? Who were the most influential people? How have these shaped you as a math student?

3. What is the definition of a one-to-one correspondence? Can you explain it in your own words? Give a real-world example of a correspondence that is one-to-one and one that is not.

4. Compare the set operations you have learned about (⊆, ∪, ∩, etc.) with the operations which you are familiar with for whole numbers (+, −, ×, ÷, =, <, etc.). Do any of the operations on sets remind you of the operations on numbers? How? Does ∅ remind you of any particular number?

5. What are the properties of addition and multiplication of whole numbers? Which of these properties also apply to subtraction and division? To the set operations?

6. What is the remainder when \((1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10 \times 11 \times 12 \times 13 \times 14 \times 15 \times 16 \times 17 \times 18 \times 19 \times 20 \times 21 \times 22 \times 23 \times 24 \times 25 \times 26 \times 27 \times 28 \times 29 \times 30 \times 31 \times 33 \times 34 \times 35 \times 36 \times 37 \times 38 \times 39 \times 40 \times 41 \times 43 \times 44 \times 45 \times 46 \times 47 \times 48 \times 49 \times 50) + 1\) is divided by 7?


8. What is a function? Give the precise definition and explain it in your own words. Give an example (real world or mathematical) of a relation which is not a function.