

Math 123  
Fall 2022  
Dr. Lily Yen

# Assignment 1

Show all your work

Name: \_\_\_\_\_  
Number: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Score: \_\_\_\_/10

**Problem 1:** In a small group Anjali participated in for New Student Orientation, every student shook hands with one another before the group leader arrived. If the group leader made 10 handshakes by shaking hands with everyone in the group, find the total number of handshakes among the students in Anjali's small group before the leader's arrival.

Score: /2

**Problem 2:** Below is a  $3 \times 3$  magic square: using all whole numbers from 1 to 9 exactly once, fill the square such that the row sum, column sum, and diagonal sum are all equal.


Score: /2

**Problem 3:** Mei has a mason bee house in her garden. Mei's brother collects spiders. If the bees and spiders together have 40 legs, is it possible to have a least one of each? Assume that all bees and spiders have all the legs each is supposed to have: six each for bees and eight each for spiders. The following table may help you organize your work.


Score: /2

**Problem 4:** Mei, Katharina, and Anjali went to pick blueberries in Langley. If they picked 33 pounds in total with Anjali picking twice as much as Mei, and three times as much as Katharina, how many pounds did Katharina pick?

Score: /2

**Problem 5:** Determine first the largest number of tries one needs to break a code for a 6-digit lock. What if the digits must be distinct? Provide reasons for each answer.

Score: /2