

Math 123
Spring 2023
Dr. Lily Yen

Quiz 1

Show all your work

Name: _____
Number: _____
Signature: _____
Score: ____/8

Problem 1: Katharina's parents love couples potluck gatherings. If her parents join 10 other couples in a potluck and they all shake hands with each other (including their own partners), how many handshakes are there? How many handshakes will there be if they don't shake hands with their own partners?

Clearly show your reasoning in a logical and organized fashion.

Score: ____/2

Problem 2: Below is a 3×3 grid. Make a magic square by using all whole numbers from 1 to 9 exactly once to fill the square such that the row sum, column sum, and diagonal sum are all equal. Hint: Place 5 in the middle square and an even number at a corner.

Score: ____/2

Problem 3: Mei, Katharina, and Anjali wanted to share a long fruit leather of one metre. If Anjali had twice as much as Mei, and Katharina had 8 centimetres less than double the combined length of Anjali and Mei's fruit leather pieces, how many centimetres did each get?

Score: /2

Problem 4: Anjali worked in SPCA as a volunteer. She was responsible in arranging a row of cages: 3 cages with a dog each, 2 cages with a cat each, and 1 cage with a hamster.

- a. How many ways could she arrange these 6 cages?
- b. Suppose the hamster cage must be at the end of the row, how many ways could she arrange the cages?

Use a tree diagram to support your reasoning.

Score: /2