MATH 113: DISCRETE STRUCTURES
HOMEWORK FOR FRIDAY WEEK 4

Problem 1. There are 10 people in a room of ages somewhere between 1- and 60-years old (inclusive). Prove that there are two disjoint nonempty groups of people such that the sum of each group's ages is the same. [*Hint*: First show that there are two *distinct* nonempty groups of people satisfying this property.]

Problem 2. The integers 1 through 10 are placed in chairs around a circular table with 10 seats. Prove that there must be three neighbors whose sum is at least 17.