

DISCRETE STRUCTURE | SECI1013



Counting Methods (Part 3-Pigeonhole principle)

Exercise

1. There are 400 students in a programming class. Show that at least 2 of them were born on the same day of a month.
2. Let $A = \{a_1, a_2, a_3, a_4, a_5, a_6, a_7\}$ be a set of seven integers. Show that if these numbers are divided by 6, then at least two of them must have the same remainder.
3. Let $A = \{1,2,3,4,5,6,7,8\}$. Show that if you choose any five distinct members of A, then there will be two integers such that their sum is 9.
4. From the integers in the set $\{1,2,3, \dots, 19,20\}$, what is the least number of integers that must be chosen so that at least one of them is divisible by 4?