

Problem 1: In a survey on the chewing gum preferences of baseball players, it was found that 22 like fruit, 25 like spearmint, 39 like grape, 9 like spearmint and fruit, 17 like fruit and grape, 20 like spearmint and grape, 6 like all flavors, 4 like none. How many players were surveyed?

Problem 2: In how many ways can a number be chosen from 1 to 22 such that (a) it is a multiple of 3 or 8? (b) it is a multiple of 2 or 3?

Problem 3: There is a website which requires users to create a 10 character long password and the password must be in the following format:

LLLDDDDDDD, where L stands for an uppercase letter(A-Z) and D stands for a digit(0-9). How many different passwords are possible?

Problem 4: An elementary school has 500 students. Show that at least two of them were born on the same day of the year.

Problem 5: Imagine a certain college has 6,000 American students, at least one from each of the 50 states. What is the minimum number of students who share the same state? (Give the largest possible answer)