Homework 1: Weighings, Logic and Geometric Constructions

Konstantin Miagkov

January 13, 2019

1 Homework

Problem 1.
Four coins are lined up on the table. At least one of the coins is real, and at least one is fake. All real coins weigh the same, and all fake coins weigh the same and are lighter than the real ones. It is also known that any fake coins is to the right of any real coin. Show how to find all fake coins by applying the balance scale once.

Problem 2.
200 parrots live on an island. One day, each of them made a declaration. Starting with the second parrot, all declarations were the same – "70% of all previous declaration were false." How many of the 200 declarations were false?