Challenge 1 (Spring 2018)

Blue Problem

Consider any 5 cities on Earth. Imagine Earth is a perfect sphere. Show that we can cut the Earth into 2 equal half-spheres with a really big sword, so that one of the half-spheres contains (or at least cuts through) 4 out of the 5 cities.

Gold Problem

You have 100 people, each having an integer. Show that no matter what their integers are (same, different, big, small, whatever), we can put some people (possibly just 1) in a room such that the sum of the numbers of the people in the room is divisible by 100.