Problem Set 2

UW Math Circle

Session $\omega + 4$ (16 October 2014)

1. (easy) 102 mathematicians came to a conference, and each one is friends with at least 68 others. Prove that there are four of them who have the same number of friends.

2. (Mexico 1994; easy) The 12 numbers on a clock face are rearranged. Show that we can still find three adjacent numbers whose sum is at least 21.

3. (hard) 10 ladies and 10 gentlemen came to a dance. Each gentleman danced with an even number of ladies. Prove that there are two gentlemen who danced with an even number of ladies in common.