

Lesson 3 Problem 6 Solution

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Problem 1

Pick two scientist who are not friends with each other: a and b . There are $50 - 2 = 48$ more scientists other than them. a is friends with 25 people in the other 48 people and so does b . But $25 + 25 = 50$ which is two more than 48. By the Pigeonhole Principle, a and b must have two common friends c and d . Now we can sit a, b, c, d clockwise (or counterclockwise) on the round table and every two neighbors will know each other.