

Homework 7: Games and Geometry II

Konstantin Miagkov

Problem 1.

a) In a game of two players, the first one starts by naming an integer from 2 to 9. Then every turn consists of multiplying the current integer by something from 2 to 9. The winner is the first player to get the integer to be over 1000. Who has a winning strategy?

b) What would happen, if players are also allowed to multiply by 1, and each player is playing optimally to win?

Problem 2.

Two lines passing through a point M are tangent to a circle at the points A and B . The radius OB is extended past B by the segment $BC = OB$. Prove that $\angle AMC = 3\angle BMC$.