

Lesson 6: Games and Geometry

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Problem 1.

Two players are playing a game. Initially, the number 1 is written on the board. A move consist of adding any number from 1 to 5 to the current number. The person who makes the number on the board equal to 30 wins. Who has a winning strategy – the first player, or his opponent?

Problem 2.

Two players are playing on a 9×9 board by placing stones in the squares. It is not allowed to place a stone on a square if it already has one, or if it is adjacent to a square with a stone. Who has a winning strategy?

Problem 3.

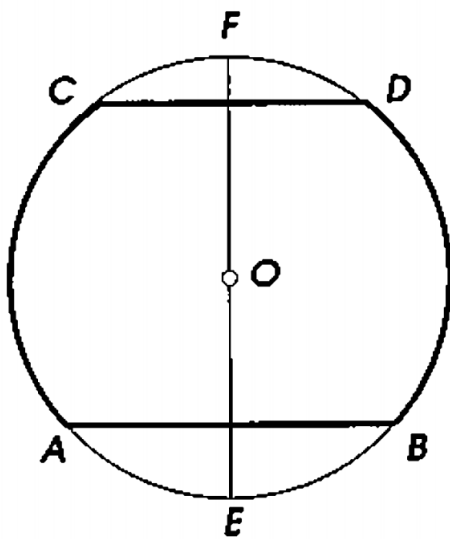
Two players place rooks on the 8×8 chess board. The person after whose turn all squares of the board are attacked by rooks wins. Who has a winning strategy?

Problem 4.

Through any three points, not lying on the same line, it is possible to draw a circle, and such a circle is unique.

Problem 5.

The arcs (AC and BD, Figure 1) contained between parallel chords (AB and CD) are congruent.



Problem 6.

A diameter is the greatest of all chords.