

Name: \_\_\_\_\_

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1. Two players are put bishops on the chessboard one by one so that each new bishop is not attacked by the previously placed bishops. If a player cannot make a move, the player loses. Determine the winning strategy. *Use symmetric strategies.* (One bishop attack another if they are on the same diagonal.)

<b>Solution:</b>
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2. Consider the Misère subtraction game where players may subtract 1, 2 or 5 chips on their turn, identify the N- and P-positions. (Recall that the definition of P- and N-positions in the Misère games is the same, but the terminal positions are N-positions).

**Solution:**

3. Two players play the following game: on each step they move a rook up or to the right (on any number of squares); the rook begins on a1. Determine who wins in this combinatorial game.

**Solution:**

4. Find the Sprague–Grundy function for the subtraction game with the subtraction set  $\{1, 3, 5\}$ .

**Solution:**