

# NeoRithmoMachia

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Festival of Mathematical Games [C2], Festival "Le Château des Jeux" (Swiss Museum of Games) [C3]

Adaptation of the historic Rithmomachia (XI cent.), made more playable, easy and fast

The board has 9 rows and 8 columns [C4], and is divided into two halves: the white half is constituted by the four rows with the white pieces plus half the central row that is on the side of the white pyramid. The set up is the classical one (see figure).

The white pieces have a white lateral surface and a black back with the same number, and vice versa. White starts.

The pieces can change direction during the same move, but only move through empty squares, so they cannot jump. The pyramid cannot move.

The circles move 1 space in all directions, as the king of chess.

The triangles move up to 2 squares in all directions, as a king who can make 1 or 2 moves.

The squares move up to 3 squares in all directions, as a king who can do 1, 2 or 3 moves.

If a piece of the turn player can reach an opponent's piece that has a prime factor in common, the latter can be captured by substitution.

*Example 1: the 12 (= 2x2x3) can catch any multiple of 2 or 3, but not other pieces.*

The captured pieces are taken out of the board, are flipped (so they change color) and become prisoners of the capturing player, which from its next turn on may, instead of moving a piece, parachute a prisoner in a free square of the opponent's half [C5]. The pyramid can not be parachuted.

A player can not bring in their own half parachuted pieces which initially belonged to the opponent, but can move them only inside the opponent's half [C6] (the original owner of a piece is easily recognizable by the color of its lateral surface).

The first aim of the game is to capture the opponent's pyramid. At this point if the opponent capture in turn the pyramid, the game is a draw. In order to win, it is necessary to get a "triumph" without losing the pyramid.

A "triumph" is an array on 3 squares in a row horizontally, vertically or diagonally, of 3 own pieces in arithmetic, geometric or harmonic sequence, arranged in any order (also different from that of the sequence) in the opponent's half.

*Example 2: the pieces 4, 8 and 16 are in geometric sequence, to perform a triumph they may be aligned in any order: (8,4,16) or (4,16,8) etc.*

PS The white has an advantage, being able to capture the pyramid with multiples of 2 and multiples of 5, while the black needs a multiple of 7. So the stronger player should play black. Otherwise, to balance the game you may decide that the black pyramid can not be captured by a multiple of 2.

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[C4] (like the version of 1496)

[C5] Only in the opponent's half, so that parachuting is not a defensive weapon but mainly offensive. In this way the game becomes faster.

[C6] In order to facilitate the triumphs, otherwise the defender, although clearly at a disadvantage, too often succeeds to parachute pieces and then bring them back in defense.

190	225					121	49
190 Pyr.	120	90	56	30	12	66	28
100	64	81	49	25	9	36	16
		9	7	5	3		
		2	4	6	8		
9	25	4	16	36	64	49	81
15	45	6	20	42	72	91 Pyr.	153
25	81					169	289

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