After Kontsevich and Martin Gardner, this paper studies the reachable configurations of the combinatorial “game” called pebbling. An nonavoidable set is a set of cells which meets every and each reachable configuration. After the characterization of minimal unavoidable sets, the paper gives some recurrences for the number of minimal unavoidable sets, and determines the corresponding asymptotics. Finally the paper enumerates the number of certain pebble configurations. In both enumerative problems a generating function approach is used.

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MSC:
- 05B30 Other designs, configurations
- 05A15 Exact enumeration problems, generating functions
- 91A46 Combinatorial games
- 05A16 Asymptotic enumeration

Keywords:
infinite chessboard; enumeration; pebbling; reachable configuration; pebble configurations

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