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Graph theory problems from hexagonal and traditional chess.

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Summary: Chess pieces of various sorts give rise to intriguing graphs and studying their properties can yield nice conjectures, and sometimes simple proofs. This paper examines some problems related to traditional queens and bishops, and also some pieces arising in a hexagonal version of chess. Using powerful algorithmic methods such as integer-linear programming is critical to discovering various patterns.

Classification: K35 A25

Keywords: graph theory; traditional chess; hexagonal chess; integer-linear programming; triangular grid graphs

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