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RATIONAL ORTHOGONAL *VERSUS* REAL ORTHOGONAL*

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Abstract. The main question raised here is the following one: Given a real orthogonal $n \times n$ matrix X, is it true that there exists a rational orthogonal matrix Y having the same zero-pattern? It is conjectured that this is the case and proved for $n \leq 5$. The related problem for symmetric orthogonal matrices is also considered.

Key words. Real and rational orthogonal matrices, Zero-patterns, Combinatorial orthogonality.

AMS subject classifications. 15A21, 15B10.

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