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SOLUTION OF LINEAR MATRIX EQUATIONS IN A *CONGRUENCE CLASS [§]

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Abstract. The possible *congruence classes of a square solution to the real or complex linear matrix equation $AX = B$ are determined. The solution is elementary and self contained, and includes several known results as special cases, e.g., X is Hermitian or positive semidefinite, and X is real with positive definite symmetric part.

Key words. Linear matrix equations, *Congruence, Positive definite matrix, Positive semidefinite matrix, Hermitian part, Symmetric part.

AMS subject classifications. 15A04, 15A06, 15A21, 15A57, 15A63.

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