

AN ALGORITHM FOR SOLVING THE ABSOLUTE VALUE EQUATION*

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Abstract. Presented is an algorithm which for each $A, B \in \mathbb{R}^{n \times n}$ and $b \in \mathbb{R}^n$ in a finite number of steps either finds a solution of the equation $Ax + B|x| = b$, or states existence of a singular matrix S satisfying $|S - A| \leq |B|$ (and in most cases also constructs such an S).

Key words. Absolute value equation, Algorithm, Regularity, Singularity, Theorem of the alternatives.

AMS subject classifications. 15A06, 65H10, 90C33.

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