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OPERATIONS RESEARCH HANDBOOK

STANDARD ALGORITHMS AND METHODS

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Operations Research Handbook

Standard Algorithms and Methods with Examples

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Definitions and Symbols

$A : A_{[m \times n]}$: $[m \times n]$ - dimensional matrix A

I : identity matrix

Θ : null matrix

A^T : transpose of matrix A

A^{-1} : inverse of matrix A

$\mathbb{R}^n$: n-dimensional real euclidian space

If not otherwise defined, a problem P is given as follows:

$$P : \left.\begin{matrix} \min \\ \max \end{matrix}\right\} \pi = f(x); A \cdot x \gtreqless b; x \geq \Theta ,$$

where $A:A_{[m \times n]}$; $x:x_{[n \times 1]}$; $b:b_{[m \times 1]}$.

$x \in [a;b] = a \leq x \leq b$, where $b \geq a$: closed interval

$$\left.\begin{matrix} x \in (a;b] = a < x \leq b, \text{ where } b > a \\ x \in [a;b) = a \leq x < b, \text{ where } b > a \end{matrix}\right\} : \text{half-closed intervals}$$

$x \in (a;b) = a < x < b$, where $b > a$: open interval

$a := a + b$: valuation

$\exists$: there is ...

$\forall$: for all ...

$\Leftrightarrow \equiv$ iff : equivalence relation

$\Rightarrow$: implication

$[a]$: largest integer smaller than a

$\langle a \rangle$: smallest integer larger than a

$\emptyset$: empty set

$|a|$: absolute value of a

$|M| = |\{m_i\}|$: the number of elements in M

$M_1 \cup M_2$: union of the sets M_1 and M_2

$M_1 \cap M_2$: intersection of the sets M_1 and M_2