Abstract: The system of relations $Ax\,\sigma\,b$ is considered, where the relations vector σ has components $=$, $\geq$ or $\leq$, and the parameters (elements of the matrix A and right-hand side b) take values from given intervals. What is understood as solution set to this system depends on which quantifier applies to this or that interval-valued parameter and what is the order of quantifier prefixes at separate parameters. For sufficiently general case of the quantifier prefix, quantifier-free descriptions for solution sets are obtained in classical interval arithmetic, Kaucher interval arithmetic and in ordinary real arithmetic.

Keywords: interval systems of linear equations and inequalities, elimination of quantifiers, Kaucher arithmetic.