



Math for the people, by the people.

submatrix notation

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Let n and k be integers with $1 \leq k \leq n$. Denote by $Q_{k,n}$ the totality of all sequences of k integers, where the elements of the sequence are strictly increasing and chosen from $\{1, \dots, n\}$.

Let $A = (a_{ij})$ be an $m \times n$ matrix with elements from some set, usually taken to be a field or ring. Let k and r be positive integers with $1 \leq k \leq m$, $1 \leq r \leq n$, $\alpha \in Q_{k,m}$ and $\beta \in Q_{r,n}$. We let $\alpha = (i_1, \dots, i_k)$ and $\beta = (j_1, \dots, j_r)$.

The submatrix $A[\alpha, \beta]$ has (s, t) entry equal to $a_{i_s j_t}$ and has k rows and r columns.

We denote by $A(\alpha, \beta)$ the submatrix of A whose rows and columns are complementary to α and β , respectively.

We can also define similarly the notations $A[\alpha, \beta)$ and $A(\alpha, \beta]$.