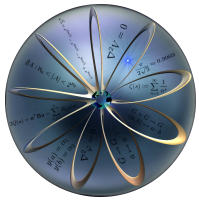

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Wishart distribution

Canonical name	WishartDistribution
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Defines	central Wishart distribution

Let $U_i \sim N_p(\mu_i, \Sigma), \quad i = 1, \ldots, k$ be independent p-dimensional random variables, which are `http://planetmath.org/jointnormaldistribution`multivariate normally distributed. Let $S = \sum_{i=1}^{k} U_i {U_i}^T$. Let M be the $k \times p$ matrix with $\mu_1, \ldots, \mu_k$ as rows. Then the joint distribution of the elements of S is said to be a *Wishart distribution on k of freedom* , and is denoted by $W_p(k, \Sigma, M)$. If $M = 0$, the distribution is said to be *central* and is denoted by $W_p(k, \Sigma)$. The Wishart distribution is a multivariate generalization of the χ^2 distribution.

W_p has a density function when $k \geq p$.