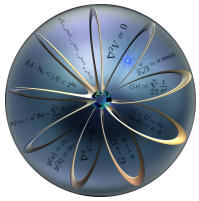

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Continuant polynomial

Canonical name	ContinuantPolynomial
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Classification	msc 68Q01

It is defined as follow

$$K_n(x_1, x_2, \ldots, x_n) := \begin{cases} 1, & \text{if } n = 0; \\ x_1, & \text{if } n = 1; \\ x_1 K_{n-1}(x_2, \ldots, x_n) + K_{n-2}(x_3, \ldots, x_n), & \text{if } n > 1. \end{cases}$$

It is easy to show, that

$$K_n(x_1, x_2, \ldots, x_n) = \det \begin{pmatrix} x_n & +1 & 0 & \ldots & 0 & 0 \\ -1 & x_{n-1} & +1 & \ldots & 0 & 0 \\ 0 & -1 & x_{n-2} & \ddots & 0 & 0 \\ \vdots & \vdots & \ddots & \ddots & \vdots & \vdots \\ 0 & 0 & 0 & \ldots & x_2 & +1 \\ 0 & 0 & 0 & \ldots & -1 & x_1 \end{pmatrix}.$$

References: Knuth D.E. **"The Art of Computer Programming, Volume 2: Seminumerical Algorithms**.