Nodes and Weights of Gauss-Hermite Calculator

Calculates the nodes and weights of the Gauss-Hermite quadrature.

$$Gauss-Hermite\ quadrature$$

$$\int_{-\infty}^{\infty} e^{-x^2} f(x)dx \simeq \sum_{i=1}^{n} w_i f(x_i)$$

$$nodes \quad x_i:\ the\ i-th\ zeros\ of\ H_n(x)$$

$$weights \quad w_i = \frac{2^{n-1} n! \sqrt{\pi}}{[nH_{n-1}(x_i)]^2}$$

order n 2 n=2,3,4,..,100

Execute Clear Chart Store/Read Print 6digit

i	x_i	w_i	$w_i e^{x_i^2}$
1	-0.707107	0.886227	1.46114
2	0.707107	0.88623	1.46114

Gaussian quadrature

$$\int_a^b w(x)f(x)dx \simeq \sum_{i=1}^{n} w_i f(x_i),\ \int_a^b g(x)dx \simeq \sum_{i=1}^{n} \frac{w_i}{w(x_i)} g(x_i)$$

$Gauss-Hermite\ quadrature$

$interval(a,b):\quad (-\infty,\infty)$

$w(x):\quad e^{-x^2}$

$polynomialsl:\quad H_n(x)$

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[1-10] /20 Disp-Num 10 Back Next

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[2] 2021/12/18 00:52 20 years old level / High-school/ University/ Grad student / Very /
Purpose of use Gauss Hermite Integration for financial purpose for a homework - Grad level

[3] 2020/11/23 12:05 20 years old level / High-school/ University/ Grad student / Very /
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Comment/Request Can we also get the expression of the Hermite polynomial H_n(x) in this same page?

[4] 2020/10/07 21:25 Under 20 years old / High-school/ University/ Grad student / Very /
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[5] 2020/05/28 00:30 60 years old level or over / An office worker / A public employee / Very /
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[8] 2018/10/30 06:16 50 years old level / A teacher / A researcher / Very /
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Back Next

Home / Numerical Integration / Gauss-Hermite quadrature

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