

$$n > 2$$

$$x_1, \dots, x_n; w_1, \dots, w_n$$

$$f(x) = 1, x, x^2, \dots, x^{2n-1}$$

Wagi Gaussa i wzły

n	x_i	w_i
2	$\pm.5773502692$	1.0
3	$\pm.7745966692$	0.555555555556
	0.0	0.88888888889
4	$\pm.8611363116$	0.3478548451
	$\pm.3399810436$	0.6521451549
5	$\pm.9061798459$	0.2369268851
	$\pm.5384693101$	0.4786286705
	0.0	0.56888888889
6	$\pm.9324695142$	0.1713244924
	$\pm.6612093865$	0.3607615730
	$\pm.2386191861$	0.4679139346
7	$\pm.9491079123$	0.1294849662
	$\pm.7415311856$	0.2797053915
	$\pm.4058451514$	0.3818300505
	0.0	0.4179591837
8	$\pm.9602898565$	0.1012285363
	$\pm.7966664774$	0.2223810345
	$\pm.5255324099$	0.3137066459
	$\pm.1834346425$	0.3626837834

Pzkytady

n	Error in $I^{(1)}$	Error in $I^{(2)}$	Error in $I^{(3)}$
2	2.29E-4	-2.33E-2	8.23E-1
3	9.55E-6	-3.49E-2	-4.30E-1
4	-3.35E-7	-1.90E-3	1.77E-1
5	6.05E-9	1.70E-3	-8.12E-2
6	-7.77E-11	2.74E-4	3.55E-2
7	8.60E-13	-6.45E-5	-1.58E-2
10	*	1.27E-6	1.37E-3
15	*	7.40E-10	-2.33E-5
20	*	*	3.96E-7

układ równan'

x_i - pierwiastki

wielomianów Legendre'a

$$I(f) = \int_a^b f(x) dx$$

podstawienie

$$2 = w_1 + w_2 + \dots + w_n$$

$$0 = w_1 x_1 + w_2 x_2 + \dots + w_n x_n$$

$$\frac{2}{3} = w_1 x_1^2 + w_2 x_2^2 + \dots + w_n x_n^2$$

$$0 = w_1 x_1^3 + w_2 x_2^3 + \dots + w_n x_n^3$$

⋮

$$\frac{2}{2n-1} = w_1 x_1^{2n-2} + \dots + w_n x_n^{2n-2}$$

$$0 = w_1 x_1^{2n-1} + \dots + w_n x_n^{2n-1}$$

$$x = \frac{1}{2} [b+a + t(b-a)], -1 \leq t \leq 1$$