Podobnie

$$P_2(x) = P_1(x) + (x - x_0)(x - x_1)f[x_0, x_1, x_2]$$

$$P_2(x_i) = P_1(x_i) + 0 = f(x_i), \qquad i = 0, 1$$

$$\begin{aligned} P_2(x_2) &= f(x_0) + (x_2 - x_0)f[x_0, x_1] + (x_2 - x_0)(x_2 - x_1)f[x_0, x_1, x_2] \\ &= f(x_0) + (x_2 - x_0)f[x_0, x_1] + (x_2 - x_1)\{f[x_1, x_2] - f[x_0, x_1]\} \\ &= f(x_0) + (x_1 - x_0)f[x_0, x_1] + (x_2 - x_1)f[x_1, x_2] \\ &= f(x_0) + \{f(x_1) - f(x_0)\} + \{f(x_2) - f(x_1)\} = f(x_2) \end{aligned}$$

Tak samo dla $n > 2$.

Przykład:

$$f(x) = \cos(x)$$

	$P_n(0.1)$	$P_n(0.3)$	$P_n(0.5)$
1	0.9900333	0.9700999	0.9501664
2	0.9949173	0.9554478	0.8769061
3	0.9950643	0.9553008	0.8776413
4	0.9950071	0.9553351	0.8775841
5	0.9950030	0.9553369	0.8775823
6	0.9950041	0.9553365	0.8775825
prawda	0.9950042	0.9553365	0.8775826

Metoda "gniazdowa":

$$D_0 = f(x_0), \qquad D_i = f[x_0, \ldots, x_i] \quad \text{dla } i \geq 1$$

$$\begin{aligned} P_n(x) = D_0 + (x - x_0)[D_1 + (x - x_1)[D_2 + \cdots \\ + (x - x_{n-2})[D_{n-1} + (x - x_{n-1})D_n] \cdots] \end{aligned}$$