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(*)
Scrieti un program care sa ne furnizeze
    polinoamele Hermite de baza pentru un set de noduri date.
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ln[8]:= X = {-1, 0, 1, 2, 3, 4, 5};

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ln[1]:= X = {x0, x1, x2, x3};

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X = {x0, x1};

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ln[9]:= n = Length[X];

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ln[10]:= For[i = 1, i ≤ n, i++,
    a = 1;
    For[j = 1, j ≤ n, j++,
        If[j ≠ i, a = a *  $\frac{x - X[[j]]}{X[[i]] - X[[j]]}$ ]];
    L[i, x_] = a;
    DL[i, x_] = D[L[i, x], x]

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ln[11]:= For[i = 1, i ≤ n, i++,
    H[i, x_] = Simplify[(1 - 2 DL[i, X[[i]]] (x - X[[i]])) L[i, x] ^ 2];
    Hb[i, x_] = Simplify[(x - X[[i]]] L[i, x] ^ 2];
]

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ln[12]:= For[i = 1, i ≤ n, i++,
    Print[H[i, x]];
    Print[Hb[i, x]]
]

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$$\begin{aligned}
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-2+x)^2 (-1+x)^2 x^2 (59+49x)}{5184000} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-2+x)^2 (-1+x)^2 x^2 (1+x)}{518400} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-2+x)^2 (-1+x)^2 (1+x)^2 (30+77x)}{432000} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-2+x)^2 (-1+x)^2 x (1+x)^2}{14400} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-2+x)^2 x^2 (1+x)^2 (-1+7x)}{13824} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-2+x)^2 (-1+x) x^2 (1+x)^2}{2304} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-1+x)^2 x^2 (1+x)^2}{1296} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x)^2 (-2+x) (-1+x)^2 x^2 (1+x)^2}{1296} \\
& - \frac{(-5+x)^2 (-4+x)^2 (-2+x)^2 (-1+x)^2 x^2 (1+x)^2 (-27+7x)}{13824} \\
& \frac{(-5+x)^2 (-4+x)^2 (-3+x) (-2+x)^2 (-1+x)^2 x^2 (1+x)^2}{2304} \\
& - \frac{(-5+x)^2 (-3+x)^2 (-2+x)^2 (-1+x)^2 x^2 (1+x)^2 (-338+77x)}{432000} \\
& \frac{(-5+x)^2 (-4+x) (-3+x)^2 (-2+x)^2 (-1+x)^2 x^2 (1+x)^2}{14400} \\
& - \frac{(-4+x)^2 (-3+x)^2 (-2+x)^2 (-1+x)^2 x^2 (1+x)^2 (-255+49x)}{5184000} \\
& \frac{(-5+x) (-4+x)^2 (-3+x)^2 (-2+x)^2 (-1+x)^2 x^2 (1+x)^2}{518400}
\end{aligned}$$

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CATEVA VERIFICARI
*)

In[18]:= **CoefficientList**[**H**[4, x], x]

Out[18]= $\left\{0, 0, \frac{25}{9}, -\frac{235}{54}, -\frac{3551}{1296}, \frac{209}{27}, -\frac{865}{324}, -\frac{22}{9}, \frac{529}{216}, -\frac{25}{27}, \frac{59}{324}, -\frac{1}{54}, \frac{1}{1296}\right\}$

In[19]:= **Length**[%]

Out[19]= 13

In[20]:= **2 n - 1**

Out[20]= 13

In[13]:= $\sum_{i=1}^n \mathbf{H}[i, x]$ // **Simplify**

Out[13]= 1