

```

DD[f_] := Expand[(f /. x -> x + 1) - f - D_y f];
bas[n_] := Table[x^{n-k} y^k, {k, 0, n}];

bas[3]
{x^3, x^2 y, x y^2, y^3}

DD /@ bas[3]
{1 + 3 x + 3 x^2, -x^2 + y + 2 x y, -2 x y + y^2, -3 y^2}

MM_n := Table[Coefficient[DD[a], b], {b, bas[n - 1]}, {a, bas[n]}]

MM_3 // MatrixForm

$$\begin{pmatrix} 3 & -1 & 0 & 0 \\ 0 & 2 & -2 & 0 \\ 0 & 0 & 1 & -3 \end{pmatrix}$$


DD[1]
0

```