

A general constant coefficient linear differential operator looks like

$$L = a_n D^n + a_{n-1} D^{n-1} + \dots + a_1 D + a_0$$

$$\begin{aligned} L \cdot y &= (a_n D^n + a_{n-1} D^{n-1} + \dots + a_1 D + a_0) \cdot y \\ &= a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y' + a_0 y \end{aligned}$$

So this is a new notation for the LHS's of the differential equations we want to consider.