

$$2. (D-1)(D+2) \stackrel{?}{=} D^2 + D - 2$$

$$\begin{aligned}(D-1)(D+2)[y] &= (D-1)[(D+2)[y]] = (D-1)[y' + 2y] = \\&= D[y' + 2y] - 1[y' + 2y] = (y'' + 2y') - (y' + 2y) = \\&= y'' + y' - 2y = (D^2 + D - 2)[y] \quad \underline{L=P}\end{aligned}$$