Example. Consider the constant-coefficient ODE:

\[ 4y'' + 4y' + y = 0 \]

(a) Find one solution of the form \( y(t) = e^{rt} \).

(b) Set \( y_1(t) = e^{rt} \), where \( r \) is the root of the characteristic polynomial found in part (a). Use reduction of order to find a second independent solution \( y_2(t) \).
Continued.