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## CP.4.5.11.a, Sauer3

Apply Levenberg-Marquardt to fit the model  $y = c_1 e^{-c_2 t} \cos(c_3 t + c_4)$  to the following data points, with an appropriate initial guess. State the initial guess, the regularization parameter  $\lambda$  used, and the RMSE. Plot the best least squares curve and the data points. This problem has multiple solutions with the same RMSE, since  $c_4$  is only determined modulo  $2\pi$ .

$$(t_i, y_i) = \{(0,3), (2,-5), (3,-2), (5,2), (6,1), (8,-1), (10,0)\}.$$