

Problem 22

By choosing the lower limit of integration in Eq. (28) in the text as the initial point t_0 , show that $Y(t)$ becomes

$$Y(t) = \int_{t_0}^t \frac{y_1(s)y_2(t) - y_1(t)y_2(s)}{y_1(s)y_2'(s) - y_1'(s)y_2(s)} g(s) ds.$$

Show that $Y(t)$ is a solution of the initial value problem

$$L[y] = g(t), \quad y(t_0) = 0, \quad y'(t_0) = 0.$$

Thus Y can be identified with v in Problem 21.