

Problem 10

In each of Problems 1 through 13:

- (a) Find the solution of the given initial value problem.
- (b) Draw the graphs of the solution and of the forcing function; explain how they are related.

$$y'' + y' + \frac{5}{4}y = g(t); \quad y(0) = 0, \quad y'(0) = 0; \quad g(t) = \begin{cases} \sin t, & 0 \leq t < \pi \\ 0, & t \geq \pi \end{cases}$$