

Problem 1

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.

$$y'' + y = f(t); \quad y(0) = 0, \quad y'(0) = 1; \quad f(t) = \begin{cases} 1, & 0 \leq t < 3\pi \\ 0, & 3\pi \leq t < \infty \end{cases}$$