

### Problem 30

In each of Problems 29 through 36, find the solution of the given initial value problem, and plot its graph. How does the solution behave as  $t \rightarrow \infty$ ?

$$y^{(4)} + y = 0; \quad y(0) = 0, \quad y'(0) = 0, \quad y''(0) = -1, \quad y'''(0) = 0$$