

## Problem 16

In each of Problems 13 through 20, verify that the given functions  $y_1$  and  $y_2$  satisfy the corresponding homogeneous equation; then find a particular solution of the given nonhomogeneous equation. In Problems 19 and 20,  $g$  is an arbitrary continuous function.

$$(1 - t)y'' + ty' - y = 2(t - 1)^2e^{-t}, \quad 0 < t < 1; \quad y_1(t) = e^t, \quad y_2(t) = t$$