Solve the following differential equations.

(1) \( y'' + 7y' + 10y = 0 \) with initial conditions \( y(0) = 1 \) and \( y'(0) = 1 \).

(2) \( ty' - 4y = t^2 \)

(3) \( t^2y' = -y^2 \)

Date: April 7, 2017.