Problem 34

Using the method of Problem 33 and the given particular solution, solve each of the following Riccati equations:

(a) $y' = 1 + t^2 - 2ty + y^2; \qquad y_1(t) = t$ (b) $y' = -\dfrac{1}{t^2} - \dfrac{y}{t} + y^2; \qquad y_1(t) = \dfrac{1}{t}$

(c) $\dfrac{dy}{dt} = \dfrac{2\cos^2 t - \sin^2 t + y^2}{2\cos t}; \qquad y_1(t) = \sin t$