Fall, 1998 – Exam 1 Answers

1. (a) $ye^y - e^y = \ln|x+1|$

    (b) $y_{n+1} = y_n + \dfrac{1}{10}\left(\dfrac{e^{-y_n}}{y_n(x_n+1)}\right)$

2. (a) $y = c_1 e^x + c_2 e^{-9x}$

    (b) $y_p = (A_1 x + A_0) + x^2(B_1 x + B_0)e^{-2x}$

3. $A(t) = e^{-t/100}(3t^2 + 5)$

5. The steady-state solution is the particular solution: $x_p(t) = 4\cos t + 2\sin t$.

6. $y(x) = c_1 e^{2x} + c_2 e^{-x} + \dfrac{1}{4}e^{3x}$