1. Solve the following initial value problems.

   (a) \[ y' + (x + 1)y^2 = 0, \quad y'(0) = 1. \]
   
   (b) \[ xy' = (y - x)^3 + y, \quad y(1) = \frac{3}{2}. \]

2. Find the general solution for \( I(t) \) to the equation

   \[ L \frac{dI}{dt} + RI = \sin \omega t, \]

   where \( R, L, \) and \( \omega \) are constants.