

Course 002: Differential Equations Problem Set

I. Please do the questions listed for Homework in the lecture notes.

II. Solve the following FODEs.

1. $Dx(t) = (x + 1)/(t - 1)$, s.t. $x(0) = 1$.

2. $Dx(t) = e^{2t+x}$, s.t. $x(0) = 0$.

3. $Dx = tx/(t + 1)$.

4. $tDx - x = t^2$.

5. $Dx = ax(1 - x)$, where $a > 0$ is given. For this differential equation, find also its equilibrium points and discuss their stability.