

AI-C 201 Differential Equations

Homework 2

(Deadline: 31st Sep, 2026)

Solve the followings,

$$\frac{dy}{dt} + \left(\frac{4t}{1+t^2}\right)y = 0, \quad y(0) = 3 \quad (1)$$

$$\frac{dy}{dt} + (2 - \tan t)y = 0, \quad y(0) = 4 \quad (2)$$

$$\frac{dy}{dt} + \left(\frac{3}{t}\right)y = t^2, \quad y(1) = 2 \quad (3)$$

$$\frac{dy}{dt} + e^{\lambda t}y = ke^{\lambda t}, \quad y(0) = y_0 \quad (4)$$