31 December 2019

Number:
Name Surname:

CEN 209 Differential Equations
QUESTIONS

1. Find the general solution of the differential equation:

$$(y\sec^2 x)dx + (\tan x)dy = 0$$

2. Find the general solution of the differential equation:

$$\frac{d^2y}{dx^2} - \frac{dy}{dx} = 6e^x - 2x - 1$$

3. Find the general solution of the differential equation:

$$\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = \frac{1}{1+e^{2x}}$$

4. Find the general solution of the linear system:

$$\frac{dx}{dt} = 4x + y$$
$$\frac{dy}{dt} = x + 4y$$

5. Find the general solution of the linear system:

$$\frac{dx}{dt} + \frac{dy}{dt} - x - y = 2e^t$$
$$\frac{dx}{dt} + \frac{dy}{dt} + 2y = 0$$

Time: 75 minutes.

Good Luck