Number:
Name Surname:

CEN 209 Differential Equations
QUESTIONS

1. Find the general solution of the differential equation:

$$\frac{dy}{dx} + 4xy = 8x$$

2. Find the general solution of the differential equation:

$$\frac{d^3y}{dx^3} - \frac{dy}{dx} = 3x^2 - 2x$$

3. Find the general solution of the differential equation:

$$\frac{d^2y}{dx^2} + 6\frac{dy}{dx} + 9y = \frac{e^{-3x}}{x^3}$$

4. Find the general solution of the linear system:

$$\frac{dx}{dt} = 5x - y$$
$$\frac{dy}{dt} = 3x + y$$

5. Find the general solution of the linear system:

$$\frac{dx}{dt} + \frac{dy}{dt} - 2x + 4y = e^t$$
$$\frac{dx}{dt} + \frac{dy}{dt} - y = 0$$

Time: 75 minutes.

Good Luck