HOMEWORK # 1[1]

1. Find the general solution of the following differential equation.

$$x\frac{dy}{dx} - 4y = x^6 e^x \tag{1}$$

2. Solve the following exact differential equation.

$$(e^{2y} - ycosxy)dx + (2xe^{2y} - xcosxy + 2y)dy = 0 \tag{2}$$

3. Use the method of homogenous equations to solve the following differential equation.

$$(x^2 + y^2)dx + (x^2 - xy)dy = 0 \tag{3}$$

4. Use integration factor to solve the following differential equation.

$$xydx + (2x^2 + 3y^2 - 20)dy = 0 \tag{4}$$

5. Find the solution of the following differential equation using the reduction of order.

$$[y^{'}]^2 = x^2 y^{''} \tag{5}$$

[1]Return date is on 16 March 2012.