Math 002A Assignment 1.1 Last Name:_____1st_____

DIRECTIONS To receive full credit, you must provide complete legible solutions to the following problems in the space provided. Transfer all your answers to the space provided on the test paper

1. State the order of the given ordinary differential equatio , and wither the equation is Linear or Nonlinear..

$$(1-x)y''-7xy'+4y^3=\cos x$$

2. State the order of the given ordinary differential equation, and wither the equation is Linear or Nonlinear..

$$\frac{d^2u}{dr^2}+\frac{du}{dr}+u=\cos(r+u)$$

3. State the order of the given ordinary differential equation, and wither the equation is Linear or Nonlinear..

$$\frac{d^2y}{dx^2}=\sqrt{1+\left(\frac{dy}{dx}\right)^6}$$

4. Find all values of m so that the function $y=e^{mx}$ is a solution of the given differential equation. $y'+6y=0$

5.a On your own, verify that the indicated expression is an implicit solution of the given first-order differential equation.

$$\frac{dX}{dt} = X' = (X-1)(1-2X); \quad ln\frac{2X-1}{X-1} = t$$

5.b Find the explicit solution

6. Verify that the indicated pair of functions is a solution of the given system of differential equations on the interval (–8, 8).

$$\frac{dx^2}{dt^2} = 4ye^t, \qquad x = \cos(2t) + \sin(2t) + \frac{1}{5}e^t$$

$$\frac{dy^2}{dt^2} = 4x - e^t, \quad y = -\cos(2t) - \sin(2t) - \frac{1}{5}e^t$$

, when $x = \cos(2t) + \sin(2t) + \frac{1}{5}e^t$