Math 252 X01
Test One

Time: 50 minutes
Total: 25 marks

Name: _____

1. [5 marks] Find an implicit solution. Eliminate logarithms, absolute values and fractions from your solution.

$\frac{dy}{dx} = y^2 - 4$

2. [4 marks] Find an implicit solution:

$(4y\cos 4x + 3x^2e^y + \sin 6x)dx + (\sin 4x + x^3e^y + \frac{1}{1+y^2})dy = 0$

3. [6 marks] Find an explicit solution:

$\frac{2x}{3}\frac{dy}{dx} + y = \frac{e^{3x}}{\sqrt{x}}, \quad y(1) = 0$

4. [4 marks] Solve the following homogeneous-degree DE. Find an explicit solution.

$(x^2 + 2y^2)dx = 2xydy$

5. [6 marks] Solve the following Bernoulli DE. Find an implicit solution.

$\frac{dy}{dx} + \frac{1}{x}y = \frac{1}{4}e^x y^{-3}$