

Name: _____

Lecturer _____

Lecture Section: _____

Ma 221

Exam IA

05F

I pledge my honor that I have abided by the Stevens Honor

System. _____

You may not use a calculator, cell phone, or computer while taking this exam. All work must be shown to obtain full credit. Credit will not be given for work not reasonably supported. When you finish, be sure to sign the pledge.

In Problems 1 – 3 solve the equations:

1 [25 pts.]

$$\frac{dy}{dx} = \frac{2xy}{1+y} \quad y(0) = 1$$

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2 [25 pts.]

$$\left(y - \frac{2}{x}\right)dx = (y - x)dy$$

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3 [25 points]

$$xy' + y = x^2y^2 \quad y(.5) = .5$$

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4a [10 pts.] The function $y = Ae^{-4t}$ is a solution of the equation

$$y'' + 5y' + 2y = 10e^{-4t}$$

Find A.

4b [15 pts.] Solve the equation

$$y' = y + e^{-t}$$