Name:_____ Lecturer _____

Lecture Section: _____

Ma 221 Exam IA 13S

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**.

Score on Problem #1 _____

#2 _____

#3 _____

#4 _____

Total Score _____

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Solve the following problems:

1 [25 **pts**.]

$$\frac{du}{dv} + \frac{\sec^2 v}{\tan v} u = \cot v \qquad u\left(\frac{\pi}{4}\right) = \frac{\pi}{2}$$

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2 [25 **pts**.]

$$\frac{dy}{dx} = y\sqrt{x+2}\,; \quad y(2) = 1$$

.

3 [25 **points**]

$$(ye^{xy} + 2xy)dx + \left(xe^{xy} + x^2\right)dy = 0$$

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4 [25 **pts**.]

$$y' = 5y - 5ty^3$$

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Table of Integrals

$\int \frac{\sec^2 t}{\tan t} dt = \ln(\tan t) + C$
$\int \tan t dt = \ln(\sec t) + C$
$\int te^{at} dt = \frac{1}{a^2} e^{at}(at - 1) + C$
$\int t^2 e^{at} dt = \frac{1}{a^3} e^{at}\left(a^2 t^2 - 2at + 2\right) + C$
$\int \cos^2 t dt = \frac{1}{2} t + \frac{1}{4} \sin 2t + C$
$\int \cos^3 t dt = \frac{1}{3} \cos^2 t \sin t + \frac{2}{3} \sin t + C$
$\int \sin^2 t dt = \frac{1}{2} t - \frac{1}{4} \pi - \frac{1}{4} \sin 2t + C$
$\int \sin^3 t dt = \frac{1}{12} \cos 3t - \frac{3}{4} \cos t + C$