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Math 202 (131)
Quiz 1 (1.1-2.2)

Name: ID #: Section #: 12

1. Does the following IVP have a unique solution? Why?

$$y' + y^2 = \sin x + y$$
$$y(1) = 2$$

2. Solve: $y' - 2xy^2 = 0$.

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Math 202 (131)
Quiz 2 (2.3-2.5)

Name: ID #: Section #: 12

1. Solve

$$\frac{dy}{dx} + y = \begin{cases} 1, & 0 \le x \le 1, \\ 0, & x > 1 \end{cases}$$

$$y(0) = 0.$$

2. Solve

$$(e^{2y} - y\cos xy)dx + (2xe^{2y} - x\cos xy + 2y)dy = 0.$$

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Math 202 (131)
Quiz 3 (4.1-4.2)

Name: ID #: Section #: 12 Serial #:

1. Verify that the functions e^{-3x}, e^{4x} form a fundamental set of solutions of the differential equation $y'' - y' - 12y = 0$ on the interval $(-\infty, \infty)$.

2. By inspection find a particular solution of

$$y'' + 3y = 2\cos x + 6x.$$

3. The function $y_1 = 1$ is a solution of $y'' + y' = 0$. Use the method of reduction of order to find the general solution of $y'' + y' = 1$.

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Math 202 (131)
Quiz 4 (4.6-4.7)

Name: ID #: Section #: 12 Serial #:

1. Solve: $y'' + y = \tan x$.

2. Reduce the following equation to a DE with constant coefficients: $x^2\, y'' - 9\, x\, y' + 25\, y = 0$.

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Math 202 (131)
Quiz 5 (Ch. 8)

Name: ID #: Section #: 12 Serial #:

1. Solve the system

$$X' = \begin{pmatrix} 1 & -1 \\ 1 & 3 \end{pmatrix} X + \begin{pmatrix} t \\ e^{-t} \end{pmatrix}$$

2. Use the matrix exponential to find a fundamental matrix for the system

$$X' = \begin{pmatrix} 2 & 4 \\ -1 & -2 \end{pmatrix} X$$