

NAME: _____

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M427J Quiz 4

Problem 1. [3 pts] Convert the following differential equation into a linear system of first order differential equations expressed in matrix form:

$$y'' - 6y' + 9y = 0, \quad y(4) = 3, \quad y'(4) = 5.$$

Problem 2. [4 pts] Compute the reduced row echelon form of

$$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 5 & 6 & 7 & 8 & 9 \\ 3 & 4 & 5 & 6 & 7 \end{pmatrix}.$$

Problem 3. [3 pts] Suppose that A is a matrix such that

$$\text{rref}(A) = \begin{pmatrix} 1 & 2 & 0 & 4 & 5 \\ 0 & 0 & 1 & -8 & -9 \end{pmatrix}.$$

Give the complete solution set to the equation $Ax = 0$.