

Quiz No. 7

Linear Algebra & DE's

Fall 2007

Name: _____

Date: _____ Section: _____

Complete each of the following problems. Show all work. Make sure to clearly label your answer. Any work that is crossed out will not be assessed. Any incorrect work will be assessed. Make sure that all work is legible.

1. Write the following system in the form $x' = Ax + f(t)$, where $x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$ and c is a constant.

$$x'_1 = 8x_1 - 10x_2 + t + 2$$

$$x'_2 = cx_1 - x_2 + 9t$$

2. For what value of c does A have an eigenvalue $\lambda = 0$? What is the other eigenvalue?

3. Find a basis for each eigenspace associated to the eigenvalues in 2.