

QUIZ 4 - MATH 310

Friday, September 29

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points] Consider the differential equation $y'' - 6y' + 9y = 0$.

(a) Verify that $y_1(t) = e^{3t}$ is one of its solutions.

(b) Use Abel's Formula to compute $W(y_1, y_2)(t)$ (leaving in the undetermined constant).

(c) Using the result of Part (b) and the fact that you know $y_1(t) = e^{3t}$ try to determine the form of $y_2(t)$.

2. [6 points] Consider the initial value problem

$$y'' + 2y' + 50y = 0, \quad y(0) = 1, \quad y'(0) = 10.$$

Find its particular solution (expressed in terms of real functions).