

QUIZ 5 - MATH 310

Friday, October 6

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. [4 points] Solve the initial value problem

$$25y'' + 10y' + y = 0, \quad y(0) = 21, \quad y'(0) = \frac{11}{5}.$$

2. [4 points] Consider the differential equation $t^2y'' - 3ty' + 4y = 0$. We observe (no need to verify this) that $y_1(t) = t^2$ is a solution. Use reduction of order to find another solution of this differential equation.

2. [4 points] Solve the second order linear non-homogeneous differential equation

$$y'' + 2y' + y = 44e^{-3t}.$$