Quiz 9

Math 54-Lec 3, Differential Equations, Fall 2017

SECTION: NAME:

You have 30 minutes to complete this quiz. To receive full credit, justify your answers.

Problem 1.(5 points) Solve the initial value problem: $y'' - 10y' + 25y = 0$, with initial conditions $y(0) = 1, y'(0) = 6$.

Problem 2.(5 points) Find a solution $y(t)$ to the differential equation $y'' + 4y' + 5y = 0$, that satisfies $y(0) = 2, y(\pi/2) = 0$.

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Problem 3.(5 points) Let $y(t)$ be a non-trivial solution to the differential equation $y'' + cy = 0$, where c is a positive constant. As t goes to infinity what can we say about the behavior of $y(t)$? Specifically, as $t \to \infty$, does: $y(t) \to 0$? $y(t) \to \pm\infty$? Or does $y(t)$ diverge without going to $\pm\infty$?