

Math 240 - Quiz 6

March 2, 2023

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (5 points) Consider the following initial value problem:

$$y'' + 2y' - 15y = -32e^{-x}, \quad y(0) = 1, \quad y'(0) = -29.$$

- (a) Verify that $y_p(x) = 2e^{-x}$ is a particular solution of the equation.

- (b) Find the solution.

2. (5 points) Solve the Cauchy-Euler equation $x^2 \frac{d^2y}{dx^2} + 3x \frac{dy}{dx} + 3y = 0$.