Math 240 - Quiz 7

March 24, 2022

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary. This quiz is due March 29.

1. (5 points) Solve the equation

$$y'' - 3y' + 2y = \frac{1}{1 + e^{-x}}.$$

Turn over.

2. (5 points) The oscillations of a mass on a spring are described by the initial value problem

$$\frac{d^2x}{dt^2} + 6\frac{dx}{dt} + 10x = 25\cos 4t, \qquad x(0) = 0.5, \quad x'(0) = 0.$$

Find the equation of motion, and identify the transient and steady-state parts of the solution. (You do not need to write your solutions in terms of a single trig function.)