

Name: _____ Sort #: _____

Worksheet 10: Undetermined Coefficients

MATH 2310, Spring 2019

Grade: _____ / 40

1. (8 pts) Determine the “guess” for $g(t)$ for the equation $y'' + p(t)y' + q(t)y = g(t)$. Assume the solution is not repeated in the homogeneous equation.

(a) $g(t) = 4 \cos(6t) - 9 \sin(6t)$

(b) $g(t) = 6t^2 - 7 \sin(3t) + 9$

(c) $g(t) = 10e^t - 5te^{-8t} + 2e^{-8t}$

(d) $g(t) = e^{7t} + 6$

2. (16 pts) Find the solution of the initial value problem

$$y'' + y' - 2y = 2t, \quad y(0) = 0, \quad y'(0) = 1$$

3. (16 pts) Find the general solution of

$$y'' - 2y' - 3y = -3te^{-t}$$