Review Project
MAP 2302
(Spring 2016)

Name: _____

Date: _____

total: 34 points possible

Solve the equation $y'' - 6y' + 9y = t$ with $y(0) = 0$ and $y'(0) = 4$ using

6 points each

(1) Undetermined coefficients
(2) variation of parameters and Wronskians
(3) LaPlace transforms

(4) Solve the system of equations using LaPlace transforms — 8 points

$$\frac{d^2x}{dt^2} + \frac{dx}{dt} + \frac{dy}{dt} = 0$$

$$\frac{d^2y}{dt^2} + \frac{dy}{dt} - 4\frac{dx}{dt} = 0$$

with $x(0) = 1$, $x'(0) = 0$, $y(0) = -1$, $y'(0) = 5$

(5) Solve the linear equation — 4 points

$$xy' + (1+x)y = e^{-x}\cos 2x$$

(6) Solve the exact equation — 4 points

$$\left(1 - \frac{3}{y} + x\right)\frac{dy}{dx} + y = \frac{3}{x} - 1$$