

MA 2132

Polytechnic University
WORKSHEET 3

DATE: _____

Print Name:
Signature:
ID #:
Instructor:

Problem	Possible	Points
1	15	
2	10	
3	15	
4	15	
5	15	
6	15	
7	15	
Total	100	

YOUR SIGNATURE:

(1) The roots of the characteristic equation of a certain differential equation are
 $3, -5, -5, 0, 0, 0,$ and $2 \pm 3i$.

(a) What is the minimum order of the differential equation? _____

(b) Write a general solution of this homogeneous differential equation.

YOUR SIGNATURE:

(2) Find the general solution of the differential equation if x is restricted to the interval $(0, \infty)$.

$$x^2 y'' + 3xy' - 3y = 0$$

YOUR SIGNATURE:

(3) Find the solution of the initial value problem on the interval $(0, \infty)$.

$$x^2y'' - 3xy' + 4y = 0, \quad y(1) = 2, \quad y'(1) = 1$$

YOUR SIGNATURE:

(4) Find the general solution of the differential equation.

$$y'' + y = 5e^x \sin x$$

YOUR SIGNATURE:

(5) Find the general solution of the differential equation.

$$y'' + 2y' = -4$$

YOUR SIGNATURE:

- (6) Find the general solution of the differential equation. Assume that the independent variable is restricted to the interval $(0, \infty)$.

$$x^2 y'' - xy' = -4$$

YOUR SIGNATURE:

(7) Find the general solution of the differential equation.

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