

MA 2132

Polytechnic University

WORKSHEET 1

DATE: \_\_\_\_\_

Print Name:
Signature:
ID #:
Instructor:

Problem	Possible	Points
1	30	
2	30	
3	20	
4	20	
Total	100	

YOUR SIGNATURE:

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(1) Find a solution of the differential equation that satisfies the following conditions.

(a)  $y' = 6x^2 - 8x + 5$ ,  $y(-1) = 10$

(b)  $y'' = -18e^{-3x}$ ,  $y(0) = 4$ ,  $y'(0) = 1$

(c)  $y'' = \sin x$ ,  $y(\pi) = 4$ ,  $y'(\pi) = 3$

YOUR SIGNATURE:

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(2) Find the general solution to the following differential equations. If the initial condition is specified, also find the particular solution that satisfies the condition.

(a)  $2y' = y(y - 2)$

(b)  $e^y y' = 4, y(0) = 2$

(c)  $y' = 2xye^x, y(0) = e^2$

YOUR SIGNATURE:

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(3) Find the general solution to the following differential equations.

(a)  $xy' = y - xe^{y/x}$

(b)  $xy' - y = 2y(\ln y - \ln x)$

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(4) Determine if each of the following equations is exact. If it is exact, find the general solution.

(a)  $x e^{xy} y' + y e^{xy} - 4x^3 = 0$

(b)  $(x + y \sin x) y' + y + x \sin y = 0$