



MATHEMATICS 202  
SECOND SEMESTER, 2002-03  
QUIZ 1

Time: 55 MINUTES.

Date: March 20, 2003.

Name: \_\_\_\_\_

ID Number: \_\_\_\_\_

Problem Session Time: \_\_\_\_\_

Circle Section Number: 6, 7, 8, 9, 10

GRADE:

1.

2.

3.

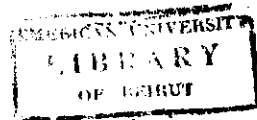
4.

5.

6.

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Total: /50



1. Determine the largest region of the  $xy$ -plane for which the differential equation

$$\frac{dy}{dx} = \frac{\sqrt{1-y^2}}{\sqrt{1-x^2}}$$

has a unique solution through any point  $(x_0, y_0)$  in the region.

(8 points)

2. Solve the differential equation

$$(y^4 - 2x^3y) dx + (x^4 - 2xy^3) dy = 0.$$

(8 points)

3. Solve the initial value problem

$$(x^2 + 1)(y^2 - 1) dx + xy dy = 0; \quad y(1) = 0.$$

(8 points)

4. Solve the initial value problem

$$2xyy' + y^2 = 2x^2; \quad y(1) = 0.$$

(8 points)

~~2xy~~

$y = \dots + C$