

Name\_\_\_\_\_ ID\_\_\_\_\_ Section\_\_\_\_\_

MATH 308

Maple Quiz 1

Summer 2003

Sections 301-302

Version A

P. Yasskin

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### TO BEGIN THE EXAM:

1. WRITE your NAME, ID and SECTION at the top of this paper.
2. TYPE your NAME, ID and SECTION at the top of the Maple Worksheet.
3. EXECUTE **with (DEtools)** :
4. SAVE your worksheet as **yourlastname.mws** NOW and AFTER EACH PROBLEM.
5. NUMBER EACH PROBLEM.

### THE EXAM:

Consider the differential equation  $\frac{dy}{dx} = \frac{2x - y^3}{3xy^2}$

1. Plot the direction field of the differential equation for  $0 \leq x \leq 4$ ,  $0 \leq y \leq 4$  and include the solution curves satisfying the initial conditions  $y(2) = 1$  and  $y(1) = 3$ .
2. Starting from the initial condition  $y(2) = 1$  use Euler's method to approximate  $y(4)$  using 10 steps. HINT: What is the step size  $h$ ?
3. Find the exact solution satisfying the initial condition  $y(2) = 1$ . Plot it. What is  $y(4)$ ?
4. In a text region, in sentences: Is the Euler approximation to  $y(4)$  bigger or smaller than the exact value of  $y(4)$ ? Why?

### TO TURN IN YOUR EXAM:

1. Reduce the font to the first magnifying glass. Reduce any plots to about 1.5 inches high.
2. SAVE your file again.
3. EXECUTE: File + Print + Output to File + Print to make a postscript file in your home directory.
4. PRINT your file using **X-Print**.
  - Open a terminal window. (The monitor with | > on the bottom toolbar)
  - TYPE: **xprint -J holdout -C Yasskin -d blocker yourlastname.ps** (or the exact name of your postscript file)
  - Press RETURN
  - The system will ask for your xprint userid and password.
5. EXECUTE: **Edit + Remove Output + From Worksheet**
6. SAVE your file again.
7. EMAIL your file as follows:
  - To: **yasskin@calclab.math.tamu.edu**
  - Attachment: **yourlastname.mws** (or the exact name of your Maple file)
  - Subject: **Sec 301**
  - Call Dr. Yasskin over to check your mailing.
  - Send the mail.
8. Turn in this paper, with your name on it, as a grading sheet.
9. Before you leave, check that Dr. Yasskin has received your email.