

Report for the Lab
Newton's Law of Motion
Blake, Fall 2005

Math 31L, section _____

Team # _____

Names of team members:

Instructions for submissions: Each team should turn in one report. **Steps 1-4 below should be completed by the end of lab**, but you can submit your responses to those parts in class on Wednesday if you'd rather. Your one-paragraph response to step 5 is due in class on Friday, October 7.

Instructions for the lab:

1. Read Part I. You should understand the following terms:

antiderivative

differential equation (DE)

order of a DE

solution of a DE

initial condition

initial value problem.

2. Do the following *Practice Problems*, which will **not** be collected:

Page 39: problems 1, 2b, 2c, 3.

Page 40: problem 1.

3. Read the introduction to Part II and the discussion of "Falling Bodies", and do Problems 1 and 2 for practice. Your work on these problems will not be collected.

4. Give your responses to Problems 3-6 in the spaces provided on the following pages.

5. Write one paragraph (and not more than one page) in which you explain why Newton's work in mathematical modeling raised the question of whether humans have free will. Include in your response your team's opinion, supported by examples, of whether developments (or lack thereof) in modern science have emphasized or refuted the question.