**Math 310 Homework #2 Cover Sheet** **name**:

- tutorial, check one: ◯ T9:30; ◯ T10:30; ◯ T11:30; ◯ R10:30; ◯ R11:30; ◯ R12:30.

- begin each problem on a new page & clearly identify each question.
- use words to describe your procedures & to interpret your results.
- put $\boxed{\text{boxes}}$ around your final results.
- due on (lucky) friday 20 september in lecture.
- the table below is for you to summarize your results (keywords are *words* & formulas are *equations*).

| question # | CONCEPT keywords & MAIN formula/result |
|---|---|
| # 2.1.25 | concept |
| | result |
| # 2.2.25 | |
| | |
| # 2.3.19 | |
| | |
| # 2.3.30 | |
| | |
| # 2.4.22 | |
| | |

- homework portfolios will also be graded on completeness & presentation.
- certain problems will be designated as practice problems; and although not subject to submission, will be assumed to have been covered for purposes of examinations.
- unless otherwise stated, numbered problems refer to Boyce/DiPrima, $7^{\text{th}}$ edition.

**Section 2.1**

- practice: # 8-11

**#25** give the solution to the IVP as well as the maximum conditions.

**Section 2.2**

- practice: # 5-8, 15-20 (you needn't do all to completion, but you should see easily how to set them up to the integration step.)

**#25** please find where the solution *first* attains its max value (do you see how this could have been deduced without solving IVP!).

**Section 2.3**

- practice: # 2,7,10

**#19** math texts were not this politically correct in my day.

**#30** give your answer in terms of number of earth radii (ie. in terms of $\xi$ where $\xi = 1$ is the earth's surface.)

**Section 2.4**

- practice: # 4-9

**#22** this is why theorems sometimes matter.

**Matlab Exercise**

- from the class webpage, download the script *code02.m* & run it in Matlab.
- modify this script to solve a first-order nonlinear IVP of your choice.
- on the plot, give the ODE & IVs that you have plotted.
- even better, choose an ODE that you can solve & plot the exact solution too.