

## Assignment 2, MATH 2066, Differential Equations

### Due: Friday, October 8, 2010, 11:30 am in lockerette

**Assignment format** Include a title page on your assignment with name, course code, assignment number and date. Put your student number on the last page of your assignment, not on the title page. Staple pages in upper left corner. Do not submit assignments in folders or binders.

**Assignment submission** Submit your assignment in the appropriate lockerette outside the Mathematics and Computer Science area (near double doors).

#### Chapter 2

- Exercises 2.3 (page 60) Problems    4    8    11    13    28
- Exercises 2.4 (page 68) Problems    4    16    22

#### Chapter 3

- Exercises 3.1 (page 89) Problems    4    32    35
- Exercises 3.2 (page 99) Problems    11
- Exercises 3.3 (page 110) Problems    8
- Do the PPLANE tutorial (see course home page) and hand in a graph of the phase plane for  $x = 4$  and  $y = 4$  and a graph of the two corresponding solutions  $x(t)$  and  $y(t)$ .

#### Chapter 4

- Exercises 4.1 (page 128) Problems    7    10    17    23    31

**Hint for 3.1.35** The final formulas are

$$v = \frac{mg}{k} + \left(v_0 - \frac{mg}{k}\right) e^{-kt/m}$$

$$s = \frac{mg}{k} t + \frac{m}{k} \left(v_0 - \frac{mg}{k}\right) \left(1 - e^{-kt/m}\right)$$

**Note** Not all questions will be marked.