Review for Math2574H exam 1

The exam will be held on Thursday February 21. It is on sections 1.1-2.3 from the book.

Here are some extra questions which I have selected to help you with review for exam 1. These questions are intended to help, not to be a list of things which, by implication, you should or should not know, and also not to be by implication a sufficiently long list. It may be that you need to do more questions to get practice, in which case look at adjacent questions in the book.

Section 1.1: no extra review questions
Section 1.2: 17, 27, 31, 33
Section 1.3: 5, 21, 25
Section 1.4: 15, 19, 25, 33, 44
Section 1.5: 12, 20, 34, 36
Section 1.6: 1, 12, 23, 33, 35, 44, 46

Try the equations in Chapter 1 Review Problems, which is an extra set of problems at the end of the chapter.

Section 2.1: 7, 9, 17, 26
Section 2.2: 10
Section 2.3: 3, 9, 23, 24

Equations you should be familiar with:
Motion in a line with constant acceleration.
Motion with constant acceleration and resistance proportional to v or the square of v.
Newton's law of cooling
Natural growth and decay
Logistic equation
Acceleration due to gravity with an inverse square law.
I will not test you on Toricelli's equation.

Methods of solution you should be familiar with:
separation of variables,
first order linear (integrating factor)
substitution method for homogeneous equations
exact differential equations,
substitution methods to reduce the order of second order equations,
Bernoulli equations.
I will not test you on the ad hoc substitutions at the start of 1.6.

If an exam question requires you to know one of the **unusual** integrals (e.g. like the integral of tan(x)) that have arisen in the problems we have done, I will give you the formula on the exam.