Comments on Maple Problem Set E

Be sure to read the instructions for the problems carefully and do all parts.

Problem 11

- Make sure that you have decent plots of both the function and its transform. You might have to adjust the vertical range, and you might have to add a separate plot.
- If Maple's answer to a Laplace transform includes a function you aren't familiar with, find out what it is and add a comment
- Be sure to give a mathematical explanation for the behavior of the plots of Laplace transforms.

Problem 13

- There are different ways to write the right hand side of the equation. These will lead to different results in (a) and (b) (but not in (c)).

Problem 15

- Make sure you plot on a long enough interval to indicate the long term behavior.
- **Resonance** occurs when there is a periodic forcing function of a harmonic oscillator equation whose frequency is the natural frequency of the equation. The homogeneous equation has periodic solutions, and a forcing function with the same frequency causes the solution of the inhomogeneous equation to have increasing amplitude as $t \to \infty$.