**MATH 411 - Summer 1998**
**Homework 1 - Due 06/15, Monday**

1- Using "PPLANE" (check the course's homepage), plot a "phase diagram" and a graph of $x(t)$ as a function of $t$ for the "falling particle" equation

$$x''(t) + \frac{k}{m}x'(t) = g,$$

where $g$ = gravity, $m$ = particle's mass and $k$ = coefficient of friction. Note that $\lim_{t\to\infty} x'(t) = mg/k$. Assume $k = 1$, $m = 2$ and $g = 3$ in the plot.

2- Do problems 2, 3, 4, 6, page 40 of the book.