Homework #9
Due F. 5/05

A number of these homework problems require you first go through the "Solved Problems" since the description/definition is not in the chapter material.

You are allowed to use Matlab (or similar) to help solve these problems but will be required to know how to do them by hand for the Final Exam. As an example, you may want to find the inverse using the Symbolic Toolbox:

```
syms z;                  % create symbolic variable z
A = eye(3);              % create simple system matrix
G = (z*eye(3) -A)^-1     % find inverse
```

Other Matlab functions that may be helpful include `inv.m`, `rank.m`, `eig.m`.

1. (Schaum 7.6) [**half points**]

2. (Schaum 7.16 - 7.17) [**half points**]

   Note this problem is solved in the book already but highlights the difference between canonical forms.

3. (Schaum 7.65)

4. (Schaum 7.68)

5. (Schaum 7.71(b))

6. (Schaum 7.72)

   Please solve it without trying to use the $\left[e^{-t}\cos t\right] u(t)$ types of terms but instead just using normal PFE. Note this means you will have complex α in the $e^{-\alpha t}u(t)$ terms.

7. (Schaum 7.73)