Handout #27

```
% Example #18

disp('*Form Element Matrices*')
ke=framel(1,0,1,1,1)
me=framms(1,0,1,1)
disp(' ')
disp('*Organize Matrices*')
kaa=rmvsm(ke,5,5,2,2)
maa=rmvsm(me,5,5,2,2)
disp(' ')
disp('*Solve Eigenproblem*')
[vec,val]=eig(kaa,maa);
disp(' ')
disp('Natural Frequencies - Omega rad/sec')
omega=diag(sqrt(val))
disp(' ')
disp('Mode Shapes')
vec
disp(' ')
disp('Plot Mode Shapes')
x=linspace(0,1,101);
psi3=3*x.^2-2*x.^3;
psi4=-x.^2+x.^3;
V1=vec(1,1)*psi3+vec(2,1)*psi4;
V2=vec(1,2)*psi3+vec(2,2)*psi4;
max1=max(abs(V1));
phi1=-V1/max1;
max2=max(abs(V2));
phi2=V2/max2;
figure(1)
clf
subplot(2,1,1)
plot(x,phi1,'k')
subplot(2,1,2)
plot(x,phi2,'k')
```