

## Handout #28

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% Example #19

disp('*Form Element Matrices*')
ke=framel(0.5,0,1,1,1)
me=framms(0.5,0,1,1)
disp('*Assemble Full System Stiffness Matrix*')
ks=zeros(9)
ms=zeros(9)
l1=[7 8 9 6 2 4] % locator vectors
l2=[6 2 4 5 1 3]
ks=addmat(ks,ke,l1) % "direct stiffness" matrix addition
ks=addmat(ks,ke,l2)
ms=addmat(ms,me,l1)
ms=addmat(ms,me,l2)
disp('*Perform Guyan Reduction on Rotations*')
kaa=rmvsm(ks,1,1,2,2)
kad=rmvsm(ks,1,3,2,2)
kda=rmvsm(ks,3,1,2,2)
kdd=rmvsm(ks,3,3,2,2)
maa=rmvsm(ms,1,1,2,2)
mad=rmvsm(ms,1,3,2,2)
mda=rmvsm(ms,3,1,2,2)
mdd=rmvsm(ms,3,3,2,2)
kddi=inv(kdd)
tda=-kddi*kda
kaah=kaa+kad*tda
maah=maa+mad*tda+(mad*tda)'+tda'*mdd*tda
disp('*Solve Translation-Only Eigenproblem*')
format long e
[vec,val2]=eig(kaah,maah)
val=diag(sqrt(val2))
```