>> S=[50 10 0 ; 10 20 40; 0 40 30]

S =

50 10 0

10 20 40

0 40 30

>> T1=[.7071 .7071 0; -.7071 .7071 0; 0 0 1]

T1 =

0.7071 0.7071 0

-0.7071 0.7071 0

0 0 1.0000

>> T2=[1 0 0; 0 .866 .5;0 -.5 .866]

T2 =

1.0000 0 0

0 0.8660 0.5000

0 -0.5000 0.8660

>> T=T2\*T1

T =

0.7071 0.7071 0

-0.6123 0.6123 0.5000

0.3535 -0.3535 0.8660

>> Tt=T'

Tt =

0.7071 -0.6123 0.3535

0.7071 0.6123 -0.3535

0 0.5000 0.8660

>> Strans=T\*S\*Tt

Stran =

44.9991 1.1522 31.9938

1.1522 50.7425 16.3060

31.9938 16.3060 4.2546

>> [DCS,PS]=eig(S)

DCS =

-0.1135 0.9263 0.3592

0.7509 -0.1568 0.6415

-0.6506 -0.3425 0.6778

PS =

-16.1676 0 0

0 48.3076 0

0 0 67.8600

>> ex=DCS(:,1)

ex =

-0.1135

0.7509

-0.6506

>> dot(DCS(:,1),DCS(:,2))

ans =

-8.3267e-017

>> PST=DCS'

PST =

-0.1135 0.7509 -0.6506

0.9263 -0.1568 -0.3425

0.3592 0.6415 0.6778

>> PST\*S\*DCS

ans =

-16.1676 -0.0000 -0.0000

-0.0000 48.3076 0

-0.0000 -0.0000 67.8600

>>