```
>> 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

>>
```