

Problem 2.50 (Adv. Strength & Applied Stress Analysis, Budynas, 2nd): Using a computer or spreadsheet program or a mathematics software package, create a program which will accept a stress and transformation matrix and evaluate the transformed stress matrix accordingly. demonstrate the program on Example 2.1-1.

4.0000	5.1962	-3.0000		0.7071	0.7071	0.0000	-8	6	-2	0.7071	-0.6124	0.3536
5.1962	-4.8005	2.7133	"=	-0.6124	0.6124	0.5000	6	4	2	0.7071	0.6124	-0.3536
-3.0000	2.7133	-8.1995		0.3536	-0.3536	0.8660	-2	2	-5	0.0000	0.5000	0.8660
σ'			"=	T			σ			T^T		
							-1.4142	7.5732	-6.6818			
							7.0711	-0.2247	2.4392			
							0.0000	-0.0505	-5.7443			

Using Toolbox Path Cache. Type "help toolbox_path_cache" for more info.

To get started, select "MATLAB Help" from the Help menu.

```
>> S=[-8,6,-2;6,4,2;-2,2,-5]
```

S =

-8	6	-2
6	4	2
-2	2	-5

```
>> T=[(2^.5)/2, (2^.5)/2, 0;-(6^.5)/4, (6^.5)/4, .5; (2^.5)/4, -(2^.5)/4, (3^.5)/2]
```

T =

0.7071	0.7071	0
-0.6124	0.6124	0.5000
0.3536	-0.3536	0.8660

```
>> T'
```

ans =

0.7071	-0.6124	0.3536
0.7071	0.6124	-0.3536
0	0.5000	0.8660

```
>> T*S*T'
```

ans =

4.0000	5.1962	-3.0000
5.1962	-4.8005	2.7133
-3.0000	2.7133	-8.1995

```
>>
```