
CME 6.4

```
a=[0 1 0 0; 0 0 1 0; 0 0 0 1; -680 -176 -86 -6];  
b=[0;0;0;1];  
c=[ 100 20 10 0];  
d=0;
```

```
sys=ss(a,b,c,d);
```

```
m=[1 0 0 0; 0 1 0 0; 0 0 1 0; 0 0 0 1];
```

```
S=lyap(a,m);
```

```
E=eig(S);
```

```
if E>0  
    disp('Lyapunov stable')  
else  
    disp('not Lyapunov stable')  
end
```

```
E1=eig(a);
```

```
if E1<0  
    disp('Eig stable')  
else  
    disp('Not Eig stable')  
end
```

```
Lyapunov stable
```

```
Eig stable
```

```
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```