Normal stress..

```
prompt= 'Input the value of sigmax:';
sx=input(prompt);

prompt= 'Input the value of sigmay:';
sy=input(prompt);

prompt= 'Input the value of tauxy:';
txy=input(prompt);

%normal stress
sn=(sx+sy)/2 + ((sx-sy)/2)*cos(2*pi/4)+txy*sin(2*pi/4);

%maximum pricipal stress
s1=(sx+sy)/2 + sqrt(((sx-sy)/2)^2+(txy^2));

%minimum pricipal stress
s2=(sx+sy)/2 - sqrt(((sx-sy)/2)^2+(txy^2));



%maxmum shear stress
tmax=sqrt(((sx-sy)/2)^2+(txy^2));

%Direction of pricipal stress
theta1 = (1/2)*atan((2*txy)/(sx-sy)) * (180/pi) ;
theta2 = 90 + theta1;

%print out the results to console
fprintf('\n normal stress = %g', sn);
fprintf('\n shear stress = %g', tmax);
```

```
fprintf('\n maximum stress = %g', s1);
fprintf('\n minimum stress = %g', s2);
fprintf('\n direction of pricipal stress = %g,%g' , theta1,theta2);
```

Variants No 2

```
clc
prompt= 'Input the value of sigmax:';
sx=input(prompt);
prompt= 'Input the value of sigmay:';
sy=input(prompt);
prompt= 'Input the value of sigmaz:';
sz=input(prompt);
prompt= 'Input the value of tauxy:';
txy=input(prompt);
prompt= 'Input the value of tauxz:';
txz=input(prompt);
prompt= 'Input the value of tauyz:';
tyz=input(prompt);
A=[sx txy;txy sy]
B=[sx txz;tzx sz]
C=[sy tyz;tyz sz]
D=[sx txy txz;txy sy tyz;txz tyz sz]
%Inveriants 1(I1)
I1=(sx+sy+sz);
%Inveriants 2(I2)
I2=det(A)+det(B)+det(C);
%Inveriants 3(I3)
I3=det(D);
```

```
fprintf('\n Invrient-1=%g',I1);
fprintf('\n Invrient-2=%g',I2);
fprintf('\n Invrient-3=%g',I3);
```