```
" Senior Project : Room 5310"
R$='R22'
Q_Evap = 25997 * convert('BTU/hr', 'kW') *3

Superheat = 5
Subcool = 5

"State 1 : Outlet Evaporator"
T[1]  = 5
x[1] = 1
P[1] = pressure(R$,T=T[1],x=x[1])
h[1]=enthalpy(R$,T=T[1],x=x[1])
s[1]=entropy(R$,T=T[1],x=x[1])
"State 2 : Oulet Superheated"
T[2] = T[1] +Superheat
P[2] = P[1]
s[2] = entropy(R$,T=T[2],P=P[2])
h[2] = enthalpy(R$,T=T[2],P=P[2])

"State 3 : Inlet Condenser"
s[3] = s[2]
P[3] = P[4]
h[3] = enthalpy(R$,s=s[3],P=P[3])
T[3] = temperature(R$,s=s[3],P=P[3])

"State 4 : Outlet Condenser"
x[4]=0
T[4] = 45
P[4] = pressure(R$,x=x[4],T=T[4])
h[4] =enthalpy(R$,x=x[4],T=T[4])

"State 5 : Outlet Condenser+Subcool"
T[5] = T[4] - Subcool
P[5] = P[4]
h[5] = enthalpy(R$,P=P[5],T=T[5])
"State 6 : Inlet Evaporator"
h[6]=h[5]
P[6]=P[1]
T[6] = temperature(R$,h=h[6],P=P[6])

"First Law at Evaporator"
Q_Evap + m_dot*h[6] = m_dot*h[2]
"First Law at Compressor "
m_dot*h[2] = m_dot*h[3]+W_dot_Compressor

"COP Calculation"
COP =  abs(Q_Evap/ W_dot_Compressor)
```

SOLUTION

Unit Settings: SI C kPa kJ mass deg

$COP = 5.8$

$\dot{m} = 0.1421$ [kg/s]

$Q_{Evap} = 22.86$ [kW]

R$ = 'R22'

$Subcool = 5$

$Superheat = 5$

$\dot{W}_{Compressor} = -3.941$ [kW]

13 potential unit problems were detected.

Arrays Table: Main

	x_i	T_i [C]	s_i	P_i [kPa]	h_i [kJ/kg-K]
1	1	5	1.743	584.3	406.8
2		10	1.757	584.3	410.6
3		67.23	1.757	1730	438.4
4	0	45		1730	256.5
5		40		1730	249.7
6		5		584.3	249.7