EES Ver. 10.835: #1867: For use by students and faculty, College of Engineering, University of Oklahoma, Stillwater, OK

{Question 3.21}

```
g=9.81[m/s^2]
P_atm=100[kPa]
A=0.01[m^2]
m_piston=50[kg]
m_water=0.1[kg]
T_water=100[C]
```

P_water=P_atm+((m_piston*g)/A)*convert(Pa, kPa) {Pressure Water: P_water = 149.1 kPa} V_water=m_water*volume(*Water*, *T*=T_water, *P*=P_water)*convert(m^3, cm^3) {Volume Water: V_water = 104.3 cm^3}

SOLUTION

Unit Settings: SI C kPa kJ mass deg

 $A = 0.01 \ [m^2] \\ m_{water} = 0.1 \ [kg] \\ T_{water} = 100 \ [C]$ $g = 9.81 \ [m/s^2] \\ P_{atm} = 100 \ [kPa] \\ V_{water} = 104.3 \ [cm^3]$

 $m_{piston} = 50 \text{ [kg]}$ $P_{water} = 149.1 \text{ [kPa]}$

No unit problems were detected.