{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]	$g = 9.81$ [m/s^2]	$m_{piston} = 50$ [kg]
$m_{water} = 0.1$ [kg]	$P_{atm} = 100$ [kPa]	$P_{water} = 149.1$ [kPa]
$T_{water} = 100$ [C]	$V_{water} = 104.3$ [cm^3]	

No unit problems were detected.