{Problem 6.007}

```
mdot=1.2[kg/s]
T_1=50[C]
P_1=1.5*convert(MPa, kPa)
P_2=15*convert(MPa, kPa)

W_actual=21[kW]

W_reversible=mdot*v*(P_2-P_1) {Work Required by a Reversible Pump: W_reversible = 16.29 kW}
v=volume(Water, T=T_1, P=P_2)

n=W_reversible/W_actual {Isentropic Efficiency: n = 77.57%}
```

SOLUTION

Unit Settings: SI C kPa kJ mass deg

mdot = 1.2 [kg/s]	n = 0.7757	P_1 = 1500 [kPa]
P_2 = 15000 [kPa]	T_1 = 50 [C]	v = 0.001006 [m^3/kg]
W_{actual} = 21 [kW]	$W_{reversible}$ = 16.29 [kW]	

No unit problems were detected.

EES suggested units (shown in purple) for v .