1. $x = 0.6$ $h_f = 151.78$ $h_{fg} = 128.36$

$h = 151.78 + 0.6(128.36) = 228.796 \rightarrow 228.8$ kJ/kg

2. $u_f = 1642.4$ $u_g = 2418.3$ $u_f \le u \le u_g$ saturated mixture

$x = \frac{u - u_f}{u_{fg}} = \frac{2000 - 1642.4}{775.9} = 0.4608$

3. $T = 100°C$ $P_{sat} = 101.42$

$P > P_{sat} \Rightarrow$ compressed liquid

4. $P = 30$ psia. $h_f = 16.946$ $h_g = 105.34$.

$h > h_g \Rightarrow$ superheated vapor.

$h = 1112.35$ @ $T = 400°F$

5. $T = 400°C$ $P_{sat} = 247.26$ psia

6. $T = 500°F$ $P_{sat} = 680.56$. $P < P_{sat} \Rightarrow$ superheated vapor.

$x = N/A$.

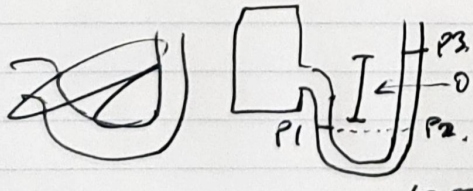
7. $m$ unknown. $PV = mRT$

$(200)(0.5) = m(0.2968)(100)$

$m = 3.369$ kg.

$P(0.5) = (3.369)(400)(0.2968)$

$P = 800$ kPa

8. 


$P_3 = 98$ kPa

$P_1 = P_2$

$P_2 = P_3 + \rho g h$

$P_3 = \frac{(1000)(9.8)}{1000}(0.8)$

$P_2 = 98 + 7.848$

$P_2 = 105.848$ kPa.

$105.85$ kPa

$P_2 = 98 + 7.848$

$P_2 = 105.848$.