Assignment # 3

$$v_2 = v_1$$

The critical specific volume of water is 0.003106 m³/kg. Thus if the final specific volume is smaller than this value, the water will exist as a liquid, otherwise as a vapor.

$$V = 4L \longrightarrow v = \frac{V}{m} = \frac{0.004 \text{ m}^3}{2 \text{ kg}} = 0.002 \text{ m}^3/\text{kg} < v_{cr} \quad \text{Thus, } \textbf{liquid.}$$

$$V = 400L \longrightarrow v = \frac{V}{m} = \frac{0.4 \text{ m}^3}{2 \text{ kg}} = 0.2 \text{ m}^3/\text{kg} > v_{cr}. \quad \text{Thus, } \textbf{vapor.}$$

H₂O
V = 4 L
m = 2 kg
T = 50°C