Corrected (10/16/08)

5. $P_{initial} = P^{sat}(50°C) = 12.352\ KPa$

Final state $P = 100\ KPa$, $v = 3.01\ m^3/kg$ (no change) 5 PTS

$v > v_{sat}$ @ 100 KPa so superheated.

	T (°C)	v (m^3/kg)	u kJ/kg
1	300	2.6389	2810.7
	.	3.01	2937.5
2	400	3.1027	2968.3

$$T = 300 + 100\ \frac{3.01 - 2.64}{3.10 - 2.64} = 380°C$$ 10 PTS

$V_{tank} = (0.500\ kg)(3.01\ m^3/kg) = 1.50\ m^3$ 5 PTS

$$u = 2810.7 + 1576\left(\frac{3.01 - 2.64}{3.10 - 2.64}\right) = 2937.5$$

Rigid tank so $Q = \Delta U = m\,\Delta u$

$u_i = 0.75(209.33) + 0.25(2442.7)\ kJ/kg$

$= 767.67\ kJ/kg$

$Q = 0.500\ kg\,(2937.5 - 767.67\ kJ/kg)$

$= 1085\ kJ$

using $Q = \Delta H$ was −3 (answ was 1337 kJ)