1. Saturated steam coming off the turbine of a steam power plant at 30°C condenses on the outside of a 3cm outer-diameter, 35-m-long tube at a rate of 45 kg/h. Determine the rate of heat transfer from the steam to the cooling water flowing through the pipe.

2. Determine the specific volume of superheated water vapor at 1.6 MPa and 225 ^{o}C based on:

   a. The ideal gas equation. R = 0.461 kPa.m^3/kg.K.

   b. The compressibility factor, Z = 0.935

3. Complete the following table for H_2O:

T, ^{o}C	P, kPa	v_g, m^3/kg	h_f, kJ/kg	h_{fg}, kJ/kg	h, kJ/kg	x	phase
150						0.4	
	200				2046		
500	500						