

AME 20231

Homework 8

Due: Tuesday, 6 April 2021, 9:00 AM, on Sakai

1. 4.64, let instead  $P_1 = 3200$  kPa.
2. 4.87, let instead the hot air have an inlet temperature of 1900 K.
3. 4.94, let instead the temperature after combustion be 1700 K.
4. A tank containing 40 kg of liquid water initially at 45°C has one inlet and one exit with equal mass flow rates. Liquid water enters at 45°C and a mass flow rate of 270 kg/hr. A cooling coil immersed in the water removes energy at a rate of 7.6 kW. The water is well mixed by a paddle wheel so that the water temperature is uniform throughout. The power input to the water from the paddle wheel is 0.6 kW. The pressures at the inlet and exit are equal and all kinetic and potential energy effects can be ignored. Determine the variation of water temperature with time. Give a computer-generated plot of temperature versus time.