10.213 Homework
10/6/99

Problem 13 Due 10/15

Methane gas is burned completely with 20% excess air in a furnace operating at one atmosphere. Both the methane and air enter the furnace at 30ºC saturated with water vapor. The flue gas (furnace exhaust) leaves the furnace at 1,300ºC. The flue gas then passes through a heat exchanger and emerges at 50ºC. On the basis of one mole of methane, how much heat is lost from the furnace, and how much heat is transferred in the heat exchanger?