

**CHG 2314
HEAT TRANSFER**

Professor: B. Kruczek

2005/03/18

Assignment No. 8

1. Problem 7.26
2. Problem 7.58
3. Glass balls of diameter $D = 0.15$ m, which are initially at a uniform temperature $T_i = 200^\circ\text{C}$, are cooled in a stream of cold air at $T_\infty = 10^\circ\text{C}$ flowing with a constant velocity of 6 m/s. Neglecting radiation effects, estimate the time required for the balls to cool to a final, safe-to-touch temperature of $T_f = 50^\circ\text{C}$.

Use the following properties for glass: $k = 0.88$ W/m K, $\rho = 2400$ kg/m³, and $c_p = 840$ J/kg K.

Due Date: March 29, 2005 at 4:00 p.m. in the assignment box.