M340 sec 4 Assignment #1 due friday

1. An egg at room temperature (20 degrees C) is placed in boiling water (100 degrees C). Write down a differential equation for, $T(t)$, the temperature of the egg at time t after the egg is placed in the water. Find $T(t)$ by solving the differential equation (and using the initial condition). Your solution will contain a constant parameter k.

2. If the temperature of the egg after 2 minutes in the water is 80 deg C, find the constant k.

3. Using the value of k found in the previous problem, find $T(1)$ and $T(3)$.

4. Find the earliest time t at which the temperature of the egg is greater than 99 deg. C.