

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Physics Department

Physics 8.01T

Fall Term 2004

Experiment 10: Energy Transformation

Section: _____ **Table and Group:** _____

Participants: _____

Each group need turn in only one report. Make sure that you each have a copy of your data, as you will need it for a problem on Problem Set 13. (You can find a copy of the problem at the end of the notes for the experiment.)

Calibration:

You fit the temperature of your thermistor by the equation $T = B - A \ln(R)$. Enter the room temperature during your measurements and the parameters A and B for your thermistor in the table below.

B ($^{\circ}\text{C}$)	A ($^{\circ}\text{C}$)	T_{room} ($^{\circ}\text{C}$)

Friction Heating:

When you fit your heating curve to $T(t) = C + Bt(1 - t/A)$, what did you find for the parameters?

C ($^{\circ}\text{C}$)	B ($^{\circ}\text{C}/\text{s}$)	A (s)

What mass of water m_w was in your jar?

Electric Heating: What did you measure for the heater resistance and applied voltage?

R (Ω)	V (volts)

When you fit your heating curve to the expression $T(t) = C + Bt(1 - t/A)$, what did you find for the parameters?

C ($^{\circ}\text{C}$)	B ($^{\circ}\text{C}/\text{s}$)	A (s)

What mass of water m_w was in your jar?