

Prelab 3: Mechanical Equivalent of Heat
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Object: Measure the equivalency of heat and mechanical energy by an electrical method

Theory: Potential / Voltage is work per charge, $V=W/Q$.
 $W=VQ \rightarrow W=VIt \rightarrow W=I^2Rt$
 $J=W/H=VIt/H$

Procedure:

1. Weigh calorimeter cup, fill $\frac{3}{4}$ ways with water. Cool to 5 degrees below room temp. Weigh the cup.
2. Assemble calorimeter, read initial temp of water after stirring.
3. Connect the circuit. Set power supply to 3.2A and turn off.
4. Run datastudio temperature measuring program. Read the voltage, current, and time every time the temp increases by one degree. Keep power supply constant.
5. Stir water in calorimeter gently and continuously until temperature is as far above room temp as it was below at the start. Continue the stir and note the highest temperature. Turn off the power supply when changing water.