

## **Prelab: Experiment #9 – Animals**

Read Experiment #9. Note, you will not use uncertainty propagation in this lab.

You should prepare a spreadsheet to do these calculations for your actual experimental data.

Correction on page 76 of manual,  $c_{\text{water}} = 4.186 \text{ J/g}^\circ\text{C}$ .

A can has a mass of 65.0 g. It has a diameter of 6.0 cm and a height of 11.0 cm. It is filled with 549.0 g of warm water. A plot of the how the can's temperature changes with time yields the equation

$$T = (-0.0035 \text{ }^\circ\text{C/s}) t + 39.0 \text{ }^\circ\text{C}$$

What is the rate of cooling of the can?

(8.15)

How much energy would such a animal expend in a day staying warm in KJ.

(7038)

How many grams of peanuts would it need to consume?

(267)

What is the  $d/h$  ratio?

(0.545)

What is the ratio of the exposed surface area of the can to its total mass in SI units?

(0.0338)

Note, you will not be allowed into the lab until you show that you have done the pre-lab and have properly prepared the introductory portion (Title, Goal, Theory Summary, and Uncertainty Derivations) of the lab in your notebook.

No extra lab time will be allowed for the time you miss because you are unprepared.