Mass, Length, and Time

As you work through the steps in the lab procedure, record your experimental values and the results on this worksheet. Use the exact values you record for your data to make later calculations.

Procedure A: Acceleration of gravity

What is the length of the pendulum?

What is the time required for 20 oscillations of the pendulum?

What is the period of oscillation of the pendulum?

What is the experimental value of acceleration due to gravity?

What is the percent uncertainty in the experimental value of g?

What is the percent error in the experimental value of g?

Does this value agree within the range of your experimental uncertainty? (Consider g_{expt} and its uncertainty exactly as you have entered them.)

CHECKPOINT 1: Ask your TA to check your calculations before proceeding.

Procedure B: Density of Aluminum

What is the length of the cylinder?

What is the mass of the cylinder?

Record the readings for the cylinder's diameter in the table below.

Data Table 1

Reading	Diameter (cm)
$\boldsymbol{D}_1$	
$\boldsymbol{D}_2$	
$\boldsymbol{D}_3$	
$\boldsymbol{D}_4$	
$\boldsymbol{D}_5$	
$\boldsymbol{D}_6$	
$\boldsymbol{D}_7$	
$\boldsymbol{D}_8$	

What is the average value of the diameter of the cylinder?

What is the experimental value of the density of the cylinder?

What is the percent uncertainty in the density measurement?

What is the accepted value of the density of aluminum?

What is the percent error in the experimental value of the density?

CHECKPOINT 2: Ask your TA to check your calculations.