Simple Pendulum

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. Note, you will not include units in your answers.

Experiment A

Complete the table. (Record at least two rows of data. Enter "NONE" in the answer boxes for any unused rows at the bottom of the table.)

Table 1

Group i	Period, T_{Ai} (s)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

What is the number of entries in Table 1? (The number n of measured values.)

Calculate the average value of the period.

Calculate the standard deviation.

Experiment B

Complete the table. (Record at least two rows of data. Enter "NONE" in the answer boxes for any unused rows at the bottom of the table.)

Table 2

Group i	Period, $T_{\mathrm{B}i}$ (s)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

What is the number of entries in Table 2? (The number n of measured values.)

Calculate the average value of the period.

Calculate the standard deviation.

Experiment C

Complete the table. (Record at least two rows of data. Enter "NONE" in the answer boxes for any unused rows at the bottom of the table.)

Table 3

Group i	Period, T_{Ci} (s)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

What is the number of entries in Table 3? (The number n of measured values.)

Calculate the average value of the period.

Calculate the standard deviation.

Analysis

Do your values of $T_{\text{B, mean}}$ and $T_{\text{C, mean}}$ agree to within ΔT_{B} or ΔT_{C}? Do your results therefore support or disprove the hypothesis that the period of a simple pendulum is independent of the mass of the bob?

Does one choice of reference point give a smaller ΔT than the other choice?