Report Sheet

Graphing Data

Data

Length (cm)	Total time (sec)	Period (sec)
0	0	0
20	10 61	1.061
40	17	1.7
60	18.59	1.859
80	19.11	1.941
100	21.23	2.123

Slope of T^2 vs. L plot: $\frac{.044 \text{ cm}}{\text{sec}^2}$ *(include units)*

$g = \frac{4\pi^2 \times \text{slope}}{\text{sec}^2}$

Questions

1) Calculation of g (include all steps)

$\text{slope} = \frac{4\pi^2}{g}$

$g = \frac{.04132 \text{ cm}}{\text{cm}} \cdot \frac{4\pi^2}{g}$

$g = \frac{4\pi^2}{.04432 \frac{\text{sec}^2}{\text{cm}}} \rightarrow \frac{890.7585 \text{ cm}}{\text{sec}^2}$

Percent error from 980 cm/s^2 (show work)

$\%\text{error} = [1980 - 8901 / \text{correct value}] \times 100$

$\hookrightarrow 9.1836\%$

2) Length of a 1.00 sec simple pendulum

Show your work, or provide an explanation for how the length was determined.

$T^2 \propto L$

$\text{sec}^2 \times \frac{x \text{ cm}}{\text{sec}^2} = \frac{4\pi^2}{g} \times \text{sec}^2$

$x \text{ cm} = \frac{4\pi^2}{g} \times \text{sec}^2$