PHYS 201 LAB Spreadsheet & Graphing

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    Day/Time:\_\_\_\_\_\_\_

Partner(s):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

B3. Make a scatter plot: Tf versus Tc: Tf on Y-axis and Tc on X-axis, and obtain the temperature conversion equation from the data fit.

Trendline equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Temperature conversion equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

B5. Now you will make another scatter plot: Tc versus Tf: Tc on Y-axis and Tf on X-axis, and obtain the temperature conversion equation from the data fit.

Trendline equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Temperature conversion equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*C1.* **F = kz + F0**.

Plot the above data points to obtain a linear scatter plot and determine k and F0 from the Trendline equation. Include units for k and F0.

Given equation: **F = kz + F0**.

Trendline equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

k = \_\_\_\_\_\_\_\_\_\_\_\_\_\_            F0 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

C2. The distance, s as a function of time, t is given below, where *a* and *b* are constants.

                           **s = a t2 + b**

Trendline equation (s versus t):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*a* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    *b* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Trendline equation (s versus t2):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*a* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    *b* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

C3. The emf, e in millivolt, of a thermocouple operating between a bath at temperature T and an ice water standard is given by;
   e = AT + BT2, where A and B are constants.

Trendline equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A = \_\_\_\_\_\_\_\_\_\_\_\_\_\_            B = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

C4. The period, T as a function of mass, m is given by the following equation; where k is a constant.



Trendline equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Coefficient of the power fit = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equating the coefficient of the power fit, calculate the value of k. (include unit). k = \_\_\_\_\_\_\_\_\_

Make a linear scatter plot, and determine the slope, and then determine the constant k including unit. Insert your graph in the digital copy.
 Slope = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    k = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

D. Plotting kinematic equations for $v\_{0}$ = 3 m/s and ***a*** = 5 m/s2. Here, ***d*** = displacement.

|  |  |  |
| --- | --- | --- |
| $$v=v\_{0}+at$$ | $$d=v\_{0}t+\frac{1}{2}at^{2}$$ | $$v^{2}=v\_{0}^{2}+2ad$$ |

 Obtain From the trendline equation

|  |  |  |  |
| --- | --- | --- | --- |
| Scatter Plot | Trendline equation | $v\_{0}$  |  *a*  |
| *v* VS. *t* |  |  |  |
| *d* VS. *t*  |  |  | Show your work |
| *v2* VS. *d* |  | Show your work | Show your work |
| *d/t* vs. *t* |  |  | Show your work |