

11. Compare your measured and predicted values of the period and calculate the percent difference.

$$\% \text{ Dif.} = \frac{|T_p - T_m|}{T_p + T_m} \times 200$$

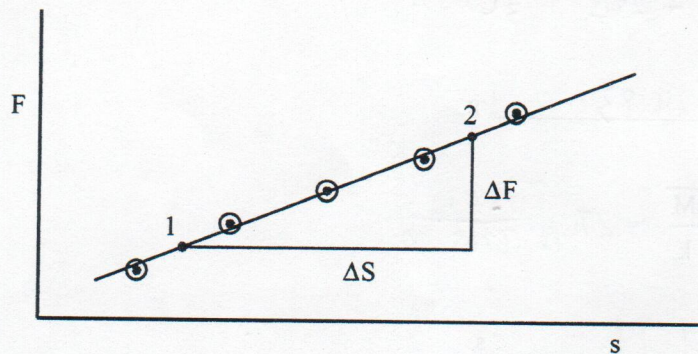
$$= \frac{|1.87 - 0.71|}{1.87 + 0.71} \times 200$$

(Substitute)

$$= \underline{430.95} \%$$

(Final answer)

12. Repeat steps 9, 10, and 11 for two additional values of mass greater than 100 g on the hanger. Record all measured and calculated data on the data table.
13. Ask your laboratory instructor if he wants you to perform steps 13 and 14. If so specified by your instructor, plot a graph of F vs. s . Plot the data points on the graph paper provided. Do not assume that every data point falls on an intersection of grid lines. Estimate between grid lines for better accuracy in the graph. Draw small circles around the data points and draw the straight line that passes closest to most of the data points. The spring constant is the slope of this line. Draw a large triangle having a horizontal side and a vertical side and having a part of the straight line of your graph as the hypotenuse. Points 1 and 2 must not be any of your original data points.



13. Calculate the spring constant k , using readings from your graph at the triangle. Don't read the coordinates to the nearest grid line; estimate readings between the lines for greater accuracy.

$$k = \text{slope} = \frac{\Delta F}{\Delta s} = \frac{F_2 - F_1}{s_2 - s_1}$$

$$= \frac{49000}{2.8}$$

(Substitute)

$$= \underline{17500} \text{ dynes/cm}$$

(Final answer)