

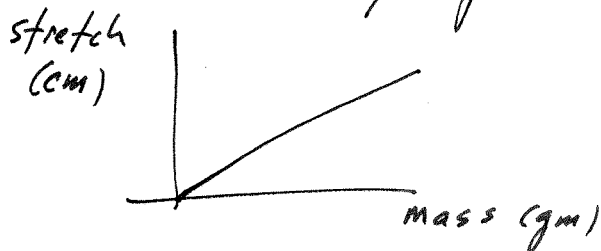
MATH 115 Session #7 Investigating the Stretch of a Spring

- PAGE 1 -

Suppose different weights are hung on a spring. How is the length the spring stretches related to the mass of the weight hung on the spring?

Preconceptions: Describe your present conception of the relationship in words and sketch a graph of that anticipated relationship.

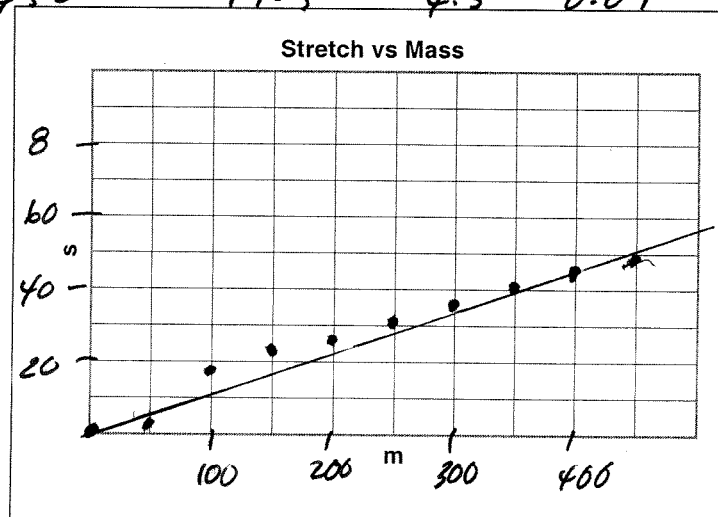
The greater the mass hung on the spring, the greater the stretch in the spring.



I think we will have a linear relationship

Experimental Data:

Δm	Mass m (grams)	Stretch s (cm)	Δs	$\Delta s / \Delta m$	Model Predicts	Absolute Error
	0	0.0			0.0	0.0
50	50	2.0	2.0	0.04	5.0	3.0
50	100	18.0	16.0	0.32	10.0	8
50	150	21.5	3.5	0.07	15.0	6.5
50	200	26.0	4.5	0.09	20.0	6
50	250	30.5	4.5	0.09	25.0	5.5
50	300	35.5	5.0	0.10	30.0	5.5
50	350	40.5	5.0	0.10	35.0	5.5
50	400	45.0	4.5	0.09	40.0	5.0
50	450	49.5	4.5	0.09	45.0	4.5



Looks like a linear model might fit.
Let's try
 $s = 0.1m$
as our first model

(GO TO PAGE 2)