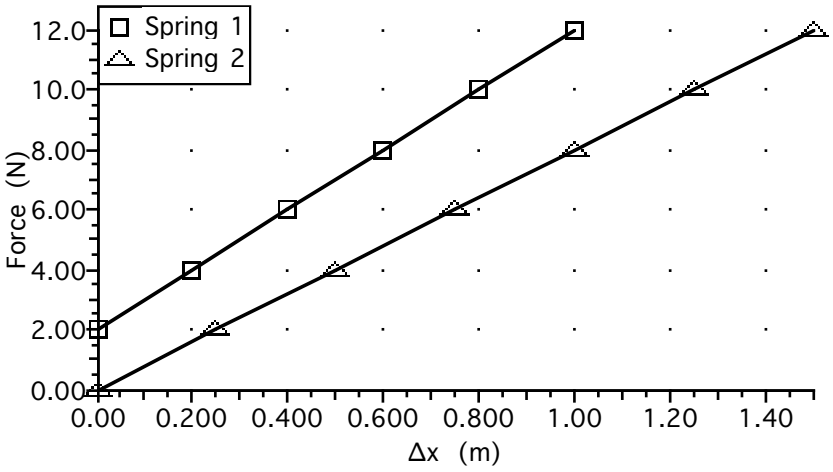
Name_____

Date _____ Pd____

Unit VII: Review

The following data were collected for two springs:



Statistics:	Slope	Y Intercept	C.O.R.
Spring 1	10.0±1.46E-18	2.00±8.85E-19	1.00
Spring 2	8.00±0.00	0.00±0.00	1.00

1. What are the spring constants of springs 1 and 2?

2. How much elastic potential energy would be stored if spring 2 were stretched from 0 to 0.40 meters?

3. How much additional energy would spring 2 store if stretched from 0.40 to 0.80 m?

4. A 1000 kg car is traveling at a constant speed of 30 m/s.

   a. How much energy is transferred to internal energy as the car comes to rest?

   b. If the car stops in 100 meters, what is the average force applied to the car?

5. A 1.5 kg kitten jumps down from a 2.0 meter high fence.

   a. What is the kitten's ΔE_g?

   b. What will be the kitten's speed when it reaches the ground?

6. A 50. g dart rests up against a spring that has been compressed 0.050 meters.

   a. If 1.25 J of work were required to compress the spring, what is its spring constant?

   b. What is the maximum velocity of the dart after the spring has transferred its energy to it?

   c. If the dart were fired vertically, what height would it reach?

   d. Draw an energy bar graph for the above situation when the dart reaches a height of 1 m. Include a graph for both the initial (y = 0m) and final states.