

Hooke's Law

Introduction

The spring force F_s on an elastic object which is stretched or compressed past its equilibrium is caused by differences in the material of the spring. This difference can be measured by looking at the force applied versus the displacement..

$$F_s = kx$$

Materials: springs, ring stand, masses, meter stick

Procedure:

1. Hang a spring from the ring stand. Measure the distance from the table to bottom of the spring. (This will be equilibrium).
2. Place a small mass on the spring. Wait for it to come to rest and find the displacement of the spring.
3. Repeat this for five different masses. (do not place too heavy a mass that the spring permanently deforms)
4. Repeat this for the following: a different type of spring, a rubber band and two rubber bands in parallel.

Data:

Make a table for each scenario displaying mass, force, and displacement.
Graph scenario and each and solve for the spring constant.