Name \_\_\_\_\_ **Honors Physics** Period \_\_\_\_\_ **Springs** 

**Directions:** Read online textbook pages 437 – 442. Solve the following problems using the GUESS method and proper significant figures. Be sure to show ALL work.

1. The graph below represents the relationship between the force applied to a spring and spring elongation for four different springs. Which spring has the greatest spring constant?

(B) B



2. A spring has an unstretched length of 0.40 meter. The spring is stretched to a length of 0.60 meter when a 10.-newton weight is hung motionless from one end. The spring constant of this spring is

(A) 10. N/m

(B) 17 N/m

(A) A

(C) 25 N/m

(C) C

(D) 50. N/m

(D) D

3. A vertical spring has a spring constant of 100, newtons per meter. When an object is attached to the bottom of the spring, the spring changes from its unstretched length of 0.50 meter to a length of 0.65 meter. The magnitude of the weight of the attached object is

(A) 1.1 N

(B) 15 N

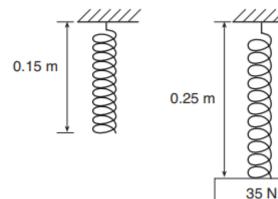
(C) 50. N

(D) 65 N

4. The diagram below represents a 35-newton block hanging from a vertical spring, causing the spring to elongate from its original length.

Unstretched spring

Stretched spring



Determine the spring constant of the spring.

5. Cy Dwoks applies 317 N of force to a spring with a spring constant of 104 N/m. How far does he get it to stretch?
6. The largest meteorite of lunar origin reportedly has a mass of 19.0 grams. If the meteorite produces a compression of 2.24 mm when placed on a spring scale, what is the spring constant of the spring? [Hint: Watch your units!]
7. A 0.250 kg mass is attached to a spring which has a spring constant of 35 N/m, as shown. It is pulled down and released so that it bobs up and down. Calculate the period of the spring.

Answers in size order: 0.53, 3.05, 83.2, 350