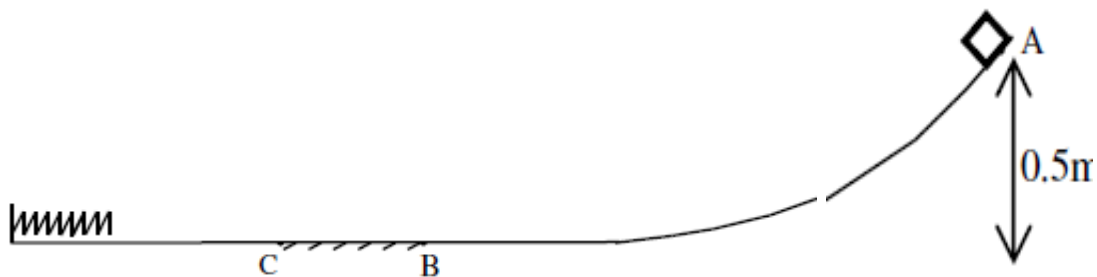


Name: _____

Elastic Energy Review Worksheet 4

1. A mass of .2 kg is hung from a spring and creates a length of .02 meters. The total length of the same spring with a mass of .7 kg hanging is .07 meters. Find the spring constant 'k'.
2. A mass of .2 kg is hung from a spring and creates a length of .02 meters. The total length of the same spring with a mass of .7 kg hanging is .07 meters. How much spring potential energy is stored in the spring when the mass being hung is .7 kg?
3. A 1000kg car rolling on a horizontal surface has a speed of 30 m/s when it strikes a horizontal coiled spring and is brought to rest in a distance of 2 m. What is the spring constant of the spring? Ignore friction.
4. A dart of mass .2 kg is loaded .05 meters into a vertically coiled spring chamber and is then released. The spring constant is 800 N/m and the spring has negligible mass. What is the dart's speed the moment the spring restores to its starting point?
5. A dart of mass .2 kg is loaded .05 meters into a vertically coiled spring chamber and is then released. The spring constant is 800 N/m and the spring has negligible mass. What is the maximum height the dart reaches?



6. A 2 kg block is dropped from rest at point A. The spring constant is $k = 500 \text{ N/m}$. Assume no friction. What is the maximum compression of the spring?
7. A 2 kg block is dropped from rest at point A. The spring constant is $k = 500 \text{ N/m}$. Assume that there is friction only between points C and B for a total of 1 meter and $.15$ is the coefficient of friction. What is the maximum compression of the spring? (Use $W = f \cdot d$)

EXTRA CREDIT

8. A 2 kg block is dropped from rest at point A. The spring constant is $k = 500 \text{ N/m}$. Assume that there is friction only between points C and B for a total of 1 meter. The coefficient of friction is $.15$. Find the final position of the block in terms of the distance from point B.