Name:_____

Spring Energy Review WS 3

1. A mass of 2 kg is hung from a spring and creates a length of 1.2 meters. The total length of the same spring with a mass of 4.7 kg hanging is2 .25 meters. Find the spring constant 'k'.

2. A mass of 2 kg is hung from a spring and creates a length of 1.2 meters. The total length of the same spring with a mass of 4.7 kg hanging is 2.25 meters. How much spring potential energy is stored in the spring when the mass being hung is 4.7 kg?

3. If the potential energy in a spring is tripled, by what factor is its stretched length increased?

4. A 100 kg car rolling on a horizontal surface has a speed of 90 m/s when it strikes a horizontal coiled spring and is brought to rest in a distance of 4 m. What is the spring constant of the spring? Ignore friction.

5. A dart of mass .4 kg is loaded .5 meters into a vertically coiled spring chamber and is then released. The spring constant is 50 N/m and the spring has negligible mass. What is the dart's speed the moment the spring restores to its starting point?

6. A dart of mass .4 kg is loaded .5 meters into a vertically coiled spring chamber and is then released. The spring constant is 50 N/m and the spring has negligible mass. What is the maximum height the dart reaches?
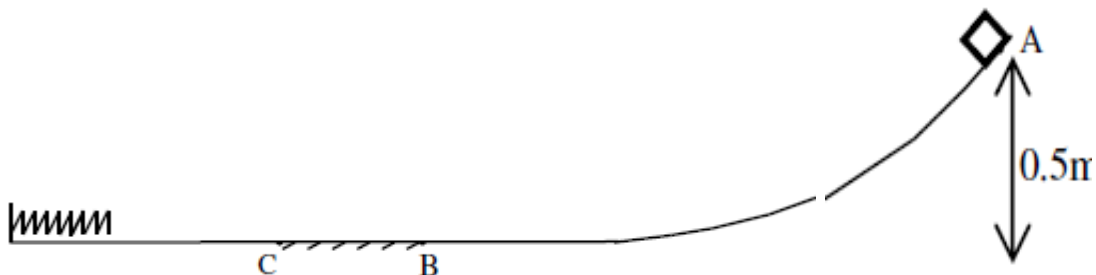
7. A 25 kg block is dropped from rest at point A. The spring constant is k = 700 N/m. Assume no friction. What is the maximum compression of the spring?

8. A 25 kg block is dropped from rest at point A. The spring constant is k = 700 N/m. Assume that there is friction only between points C and B for a total of 3 meter. What is the maximum compression of the spring?

9. A 25 kg block is dropped from rest at point A. The spring constant is k = 700 N/m. Assume that there is friction only between points C and B for a total of 3 meter. Find the final position of the block in terms of the distance from point B. At point B the surface is no longer horizontal.