

1. With your own words, describe the relationship between the Force done by a spring, its spring constant, and its displacement.
2. The car factory you work at just recalled all of the N00b cars you sell. After many accidents, they realized the springs they were using were too weak for the stress they must endure in Brazilian roads. What changes would you suggest for the springs, list at least 4.
3. Two springs are attached to the ceiling. The first has a spring constant of 150 N/m , and the second one a spring constant of 450 N/m . If equal masses are attached to both springs, and originally they had the same length, find the ratio of the heights of the masses after the springs are in equilibrium.
4. Your car is suspended from springs to make the ride softer. If the springs stretch from 35 cm long to 24 cm long when the full weight of your 1200 kg car rests on them, what is the spring constant of the springs?
5. You get a job with the Acme spring company, calibrating the springs for scales for the supermarket. You test one spring by hanging a 10 kg mass on the end and it stretches from 30 cm long to 42 cm long. What is the spring constant for that spring?
6. A spring is attached to the ceiling, it is 20 cm long. A 2 kg mass is attached to it and it stretches by 5 cm . After that another mass equal to 5 kg is attached to it, to a total of 7 kg . Find the new length of the spring.
7. A car carrier is working at full load:



The carrier itself is a 18 wheeler, and it carrier 4 cars on each level. If the spring constant of the suspension system of the cars is 4 times weaker than the spring constant of the suspension

system of the truck, and each wheel on each vehicle is attached to one spring, calculate:
(consider the total displacement equal to 15cm, mass for each car = 1500kg)

- a. the spring constants of the springs of the car.
- b. the spring constants of the springs of the truck.