

Spring PE Part II's

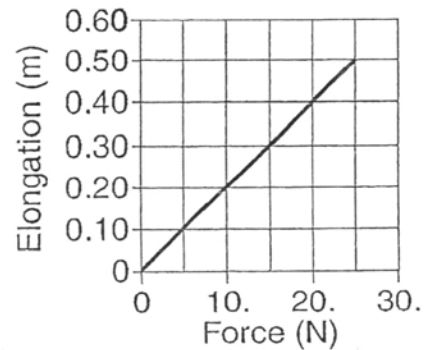
1. A 10.-newton force is required to hold a stretched spring 0.20 meter from its rest position. What is the potential energy stored in the stretched spring?
2. The spring of a toy car is wound by pushing the car backward with an average force of 15 newtons through a distance of 0.50 meter. How much elastic potential energy is stored in the car's spring during this process?

3. A catapult with a spring constant of 1.0×10^4 newtons per meter is required to launch an airplane from the deck of an aircraft carrier. The plane is released when it has been displaced 0.50 meter from its equilibrium position by the catapult. The energy acquired by the airplane from the catapult during takeoff is approximately

4. As a spring is stretched, its elastic potential energy

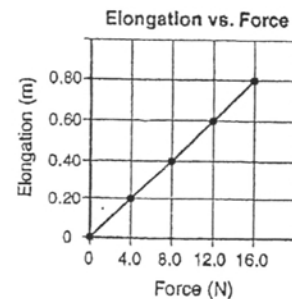
5. The graph below shows the relationship between the elongation of a spring and the force applied to the spring causing it to stretch.

Elongation vs. Applied Force



What is the spring constant for this spring?

6. A student performed a laboratory investigation to determine the spring constant of a spring. The force applied to the spring was varied and the resulting elongation of the spring measured. The student graphed the data collected, as shown below.



According to the student's graph, what is the spring constant for this spring?