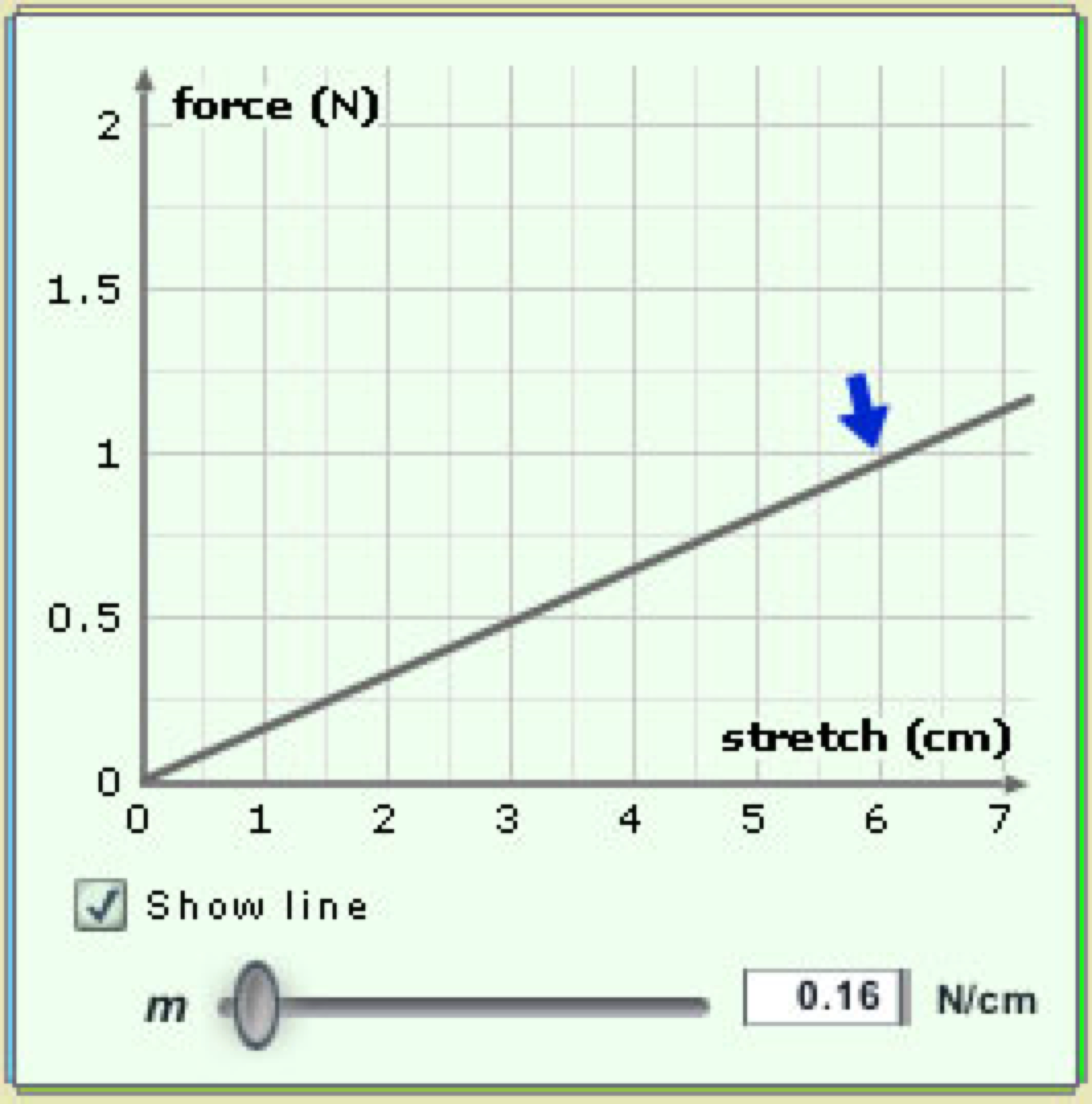
1. A spring stretches 12 cm when a 500 gram mass is attached to the end of it. What is the spring constant of the spring?
2. A spring with a spring constant of 5.2 N/m has a relaxed length of 2.45 m. When the spring is stretched to a length of 3.57 m, calculate the elastic potential energy stored in the spring.
3. The staples inside a stapler are kept in place by a spring with a relaxed length of 0.150 m. If the spring constant is 51.0 N/m, how much elastic potential energy is stored in the spring when the spring is compressed so that its length is 0.115 m?
4. An archer pulls the bowstring back a distance of 0.470 m before releasing the arrow. The bow and string act like a spring whose spring constant is 425 N/m.
   1. What is the elastic potential energy of the drawn bow?
   2. The arrow has a mass of 0.0300 kg. How fast is it traveling when it leaves the bow?
5. Using the graph, answer the following questions:
   1. What is the spring constant?
   2. If the spring is stretched to 5 cm, how much energy is stored in it?
   3. If the spring is released after being stretched 5 cm, what velocity will a 0.3 kg mass attached to the spring have when it passes through the equilibrium position?
6. A 300-g mass is attached to the end of a spring of spring constant 40 N/m. The spring is stretched 5 cm from the equilibrium position and is released from rest.
   1. What is the period of the simple harmonic motion that results?
   2. What is the frequency of the motion?
   3. Would either answer change if the spring were stretched 10 cm from equilibrium instead of 5 cm when it was released?