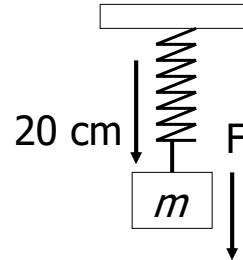


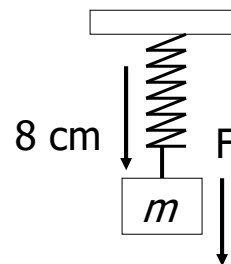
**Example 1:** A 4-kg mass suspended from a spring produces a displacement of 20 cm. What is the spring constant?



1

**Example 1(cont.):** The mass  $m$  is now stretched a distance of 8 cm and held. What is the potential energy? ( $k = 196 \text{ N/m}$ )

The potential energy is equal to the work done in stretching the spring:



2

**Example 2:** The frictionless system shown below has a 2-kg mass attached to a spring ( $k = 400 \text{ N/m}$ ). The mass is displaced a distance of 20 cm to the right and released. What is the frequency of the motion?

