**Answer on Question #68429, Physics / Mechanics | Relativity**

**Question**

on top of a spiral spring of first constant of 500N/M is placed a mass of 5*10-3kg. if the spring is compressed downward by a length of 0.02m and is then released. calculate the height which the mass is.

**Solution**

$$x = 0.02m$$
$$k = 500\,N/m$$
$$m = 5 \cdot 10^{-3}kg$$
$$g = 9.8ms^{-2}$$
$$h - ?$$

The energy conservation law gives

$$\frac{kx^2}{2} = mgh.$$

The maximal height of mass is

$$h = \frac{kx^2}{2mg} = 2.04m.$$

**Answer:** $h = \frac{kx^2}{2mg} = 2.04m.$