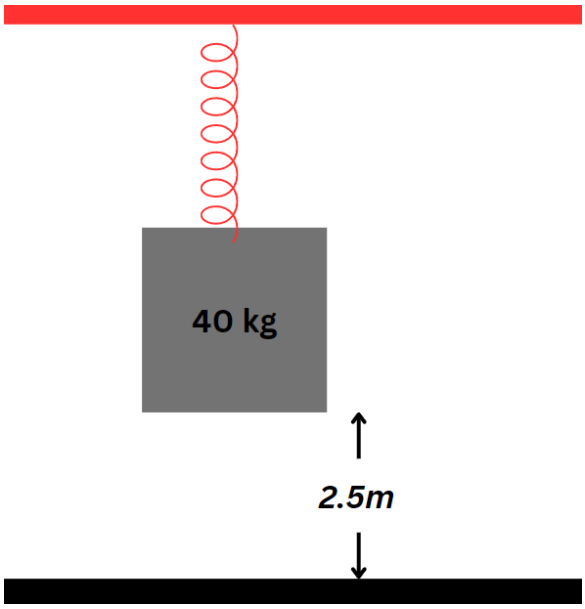
# spring point mass system




**Question**
A mass is attached to a spring with a spring constant of $\mathbf{200N/m}$. If the spring is ***contracted*** with $\boldsymbol{x = 0.5m}$, calculate the potential energy of this system

*Using known expressions*:
$P = \frac{1}{2}kx^2 + mgh$

*Given*:
$h = 2.5m$
$k = 200N/m$
$x = 0.5m$
$m = 40kg$

*Solution*:
$p = \frac{1}{2} * 200 * (0.5)^2 + 40 * 2.5 * 9.81 = 1006J$