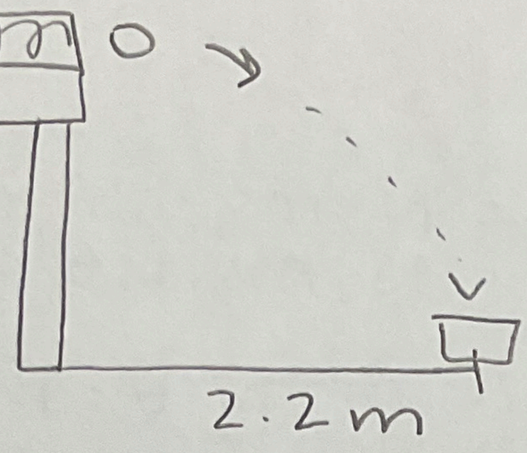
Kennedy Nicholson

KHDBDC

(a)



$F_{spring} = -kx$

$k = 1.1\,cm$ $\quad .011m$ $\qquad \Delta x = 2.2m - 27cm$ $\quad .27m$ $\qquad \Delta x = 1.93m$

$\frac{1}{2}kA^2 = \frac{1}{2}mv^2 + \frac{1}{2}kx^2$

$F_{spring} = -(.011)(1.93) = 0.02123\,N$

$0.02123 = k(2.2) \qquad k = 0.00965\,m$

$kA^2 = mv^2 + kx^2$

$kA^2 - kx^2 = mv^2$

$k(A^2 - x^2) = mv^2$

$k = \frac{mv^2}{A^2 - x^2}$