Quiz

An object of mass $m$ is shot from the origin with speed $v_0$ in the $+x$ direction. A force with magnitude $F(x) = \alpha x^2$ acts on the object in the $+x$ direction together with a second, unmeasured force. If the kinetic energy is measured and found to be $KE = \frac{1}{2}mv_0^2 + c_1x^3 + c_2x^2$, where $c_1$ and $c_2$ are known, what is the unknown force $\vec{F}_2(x) = F_2(x)\hat{i}_x$?

$F(x)$

(a) $\alpha x^2 + 3c_1x^2 - 2c_2x$

(b) $\alpha x^2 + 3c_1x^2 + 2c_2x$

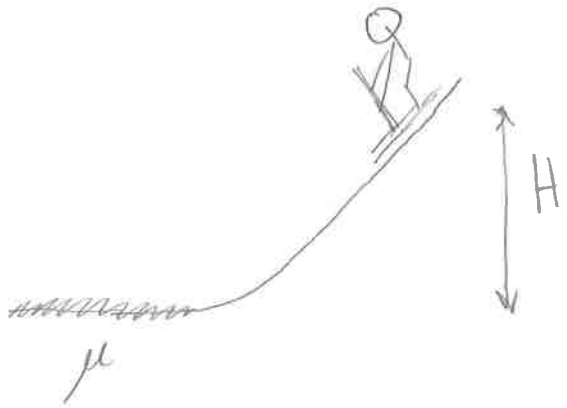
(c) $-\alpha x^2 - 3c_1x^2 - 2c_2x$

(d) $\alpha x^2 - 3c_1x^2 - 2c_2x$

(e) None of above

Quiz

A skier of mass m slides down a frictionless ski slope starting from rest at height H. At the bottom of the slope is a horizontal rough patch of snow with coefficient of friction $\mu$. How far will the skier slide horizontally after entering the rough patch before coming to rest?




(a) $\frac{H}{\mu}$

(b) $\frac{2H}{\mu}$

(c) $\frac{H}{2\mu}$

(d) $\frac{H}{4\mu}$

(e) None of above