Which of the choices below describes the scenario depicted by the energy bar chart?

\[ K_i + U_i + W_{\text{ext}} = K_f + U_f + \Delta E_{\text{in}} \]

A. A car traveling at high speed jams on the brakes and skids to a halt on a rough flat road.
B. A block attached to a wall by a spring is pulled with increasing speed along a rough flat surface.
C. A ball is shot straight upward from a compressed spring, then sticks to the ceiling.
D. A rope is lifting a box straight upward at constant speed.
E. A person is pushing a skate up a rough slope at constant speed.

Tries 0/99

Problem 7-51: A 2.30kg box has an initial velocity of 3.40m/s upwards along a rough plane inclined at 20.0 degrees above the horizontal. The coefficient of kinetic friction between the box and plane is 0.360. How far along the incline does the box travel?

\[ d = \frac{1}{2} \cdot \frac{v_i^2 - v_f^2}{g \sin \theta + \mu (g \cos \theta)} \]

\[ d = \frac{1}{2} \cdot \frac{(3.4)^2}{9.8 \sin 20^\circ + 0.36 (9.8 \cos 20^\circ)} \]

\[ d = 0.5 \cdot 3.4 \times 3 = 0.77 m \]

L) units check

\[ h = 0.77 \sin 26^\circ = 0.34 m \]

Estimate checks:

Note: mass cancelled.