

NAME _____

DATE _____

Scenario

A ball is released from rest at a height h above the floor. Consider the system to be the ball and Earth. Air resistance can be ignored.

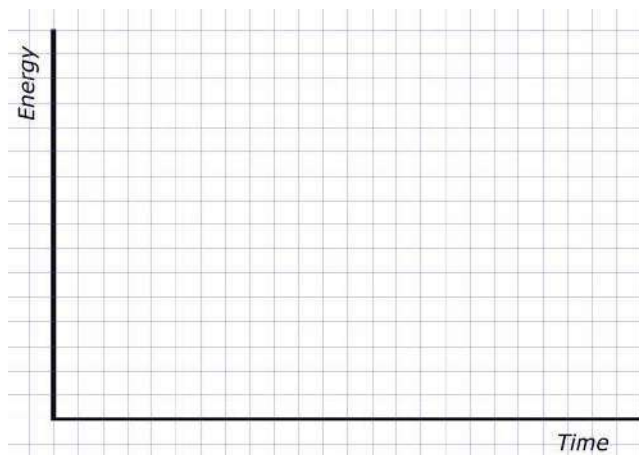
Using Representations

PART A: On the following axis, sketch graphs of:

U_g vs. distance fallen, K vs. distance fallen, and total mechanical energy vs. distance fallen. Clearly label each line or provide a key.



U_g vs. time, K vs. time, and total mechanical energy vs. time. Clearly label each line or provide a key.



Argumentation

PART B: When the ball is halfway to the ground (*at* $\frac{1}{2}h$), is its kinetic energy more than, less than, or exactly equal to half of its maximum kinetic energy? Explain.

_____ More than $\frac{1}{2} K_{\max}$ _____ Less than $\frac{1}{2} K_{\max}$ _____ Exactly $\frac{1}{2} K_{\max}$

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

PART C: When the ball is halfway through falling (*at* $t = \frac{1}{2} T$), is its kinetic energy more than, less than, or exactly equal to half of its maximum kinetic energy? Explain.

_____ More than $\frac{1}{2} K_{\max}$ _____ Less than $\frac{1}{2} K_{\max}$ _____ Exactly $\frac{1}{2} K_{\max}$

[illegible]