Name:_____ Class:_____ Date:_____
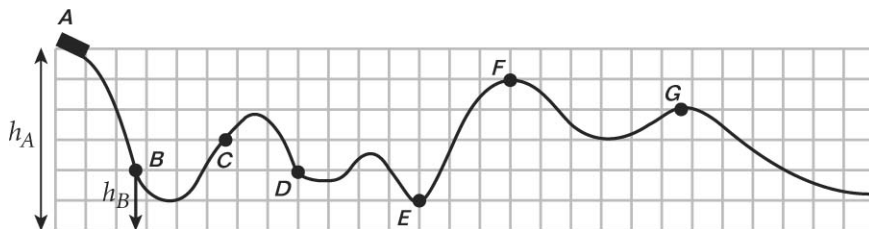
Diagram Skills

Conservation of Energy

A roller-coaster car with a mass of *m* moves along a smooth track as diagrammed in the graph below. The car leaves point *A* with no initial velocity and travels to other points along the track. The zero energy level is taken as the energy of point *A*.

1. a. What is the car's kinetic energy at point *A*?_____

   b. What is the potential energy associated with the car at point *A*?_____

   c. What is the car's kinetic energy at point *B*? _____

   d. What is the potential energy associated with the car at point *B*?_____

2. a. What is the speed of the car at point *A*? _____

   b. What is the speed of the car at point *B*?_____

3. Assume the mass of the car is 65.0 kg and it starts at 30.0 m above the ground. Use the graph above to find the kinetic energy, potential energy, and velocity for points *C*, *D*, *E*, *F*, and *G* to complete the table.

Location	KE_A	PE_A	$KE_{location}$	$PE_{location}$	$v_{location}$
C					
D					
E					
F					
G					

4. For each location, what do you notice about the sum $KE_A + PE_A$ compared with the sum $KE_{location} + PE_{location}$?

   _____

   _____

   _____