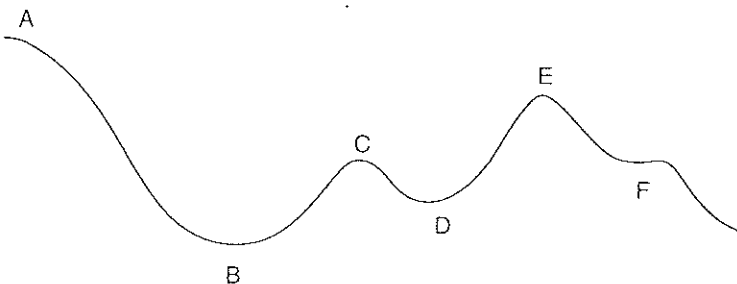


4. Complete the chart below for a roller coaster.

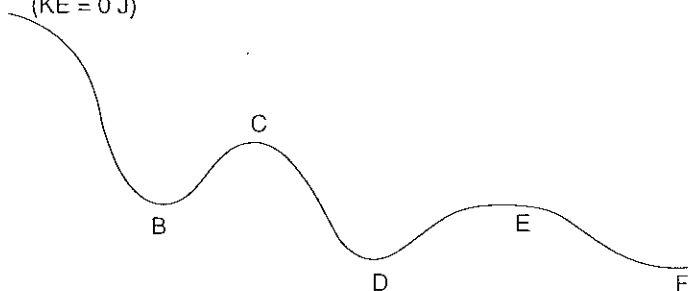
Mass of car = 200 kg and $g = 10 \text{ m/s}^2$ (approximate)			
Position of car (height) (m)	GPE (J) = mgh	KE (J) = $\frac{1}{2}mv^2$	GPE + KE (J)
Top (30 m)	60,000	0	
Bottom (0 m)			
Halfway down (15 m)			
Three-quarters way down (7.5 m)			

8. A roller coaster ride in the early morning only has 6 passengers. In the afternoon it has 26 passengers. Will the speed of the roller coaster change with more passengers aboard? Explain your answer.
9. Below is a side view of a roller coaster that starts from rest at position A.



- At which point is the roller coaster car traveling the fastest? Explain.
 - At which two points is the roller coaster car traveling at the same speed? Explain.
 - Is the roller coaster car traveling faster at E or D? Explain.
10. Below is a side view of a roller coaster that starts from rest at position A.

A (GPE = 50,000 J)
(KE = 0 J)



- Determine plausible values for the GPE and KE at points B, C, D, E, and F.
- At which two places is the roller coaster traveling at the same speed. Explain using GPE, KE, and speed in your explanation.

U.S. Spine
 Curves
 U.S. Spine