

A roller coaster rolls over the top of a hill with a speed of 10 m/s. The roller coaster's mass is 500 kg. (Ignore friction)

1. What is the speed of the roller coaster car half way down the hill?
2. What is the speed of the roller coaster car at the bottom of the hill?
3. What is the speed of the roller coaster car as it enters the loop?
4. What is the speed of the roller coaster car when it is 10 m above the ground?
5. What is the speed of the roller coaster car at the top of the loop?
6. What is the speed of the rider at the bottom of the loop?
7. What is the speed of the rider as they enter the hill's curve?
8. How high will the roller coaster travel until it comes to a stop?

