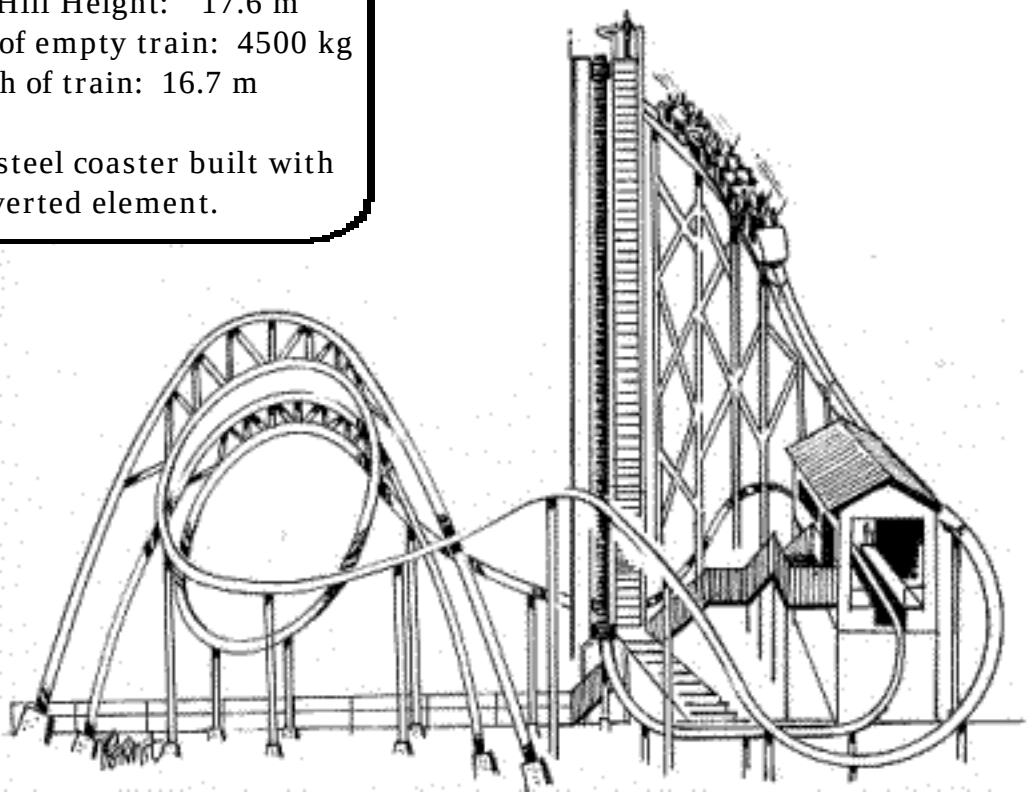
Cork Screw Roller Coaster

Ride Stats:

Length of Ride: 357.6 m
Drop Hill Height: 17.6 m
Mass of empty train: 4500 kg
Length of train: 16.7 m

First steel coaster built with an inverted element.



Measurements:

Speed of the train just before the first drop:_____

Speed of the train at the bottom of the first drop:_____

Notes:

Task 1:

Using the fact that average acceleration = $\Delta v/\Delta t$, find the average acceleration of the train as it descends the first drop.

Task 2:

Determine the top speed of the train on the Cork Screw. Where does this speed occur?

Task 3:

Determine the maximum potential energy for a fully loaded train. Determine the maximum kinetic energy for a fully loaded train. Where do these occur. Explain. How much energy is lost due to friction from the top of the highest hill to just before the braking mechanism slows the train at the station? Assume that each rider has a mass of 60 kg.

Task 4:

While riding the coaster, close your eyes through the cork screw part of the ride. What sensations do you experience? Can you tell with your eyes closed on what parts of the ride you are upside down? Ride the coaster two more times (at least!), observe the readings on a horizontal accelerometer on one trip and a vertical accelerometer on the other. Describe the readings. Do they seem to agree with the sensations you describe when your eyes were closed? Explain.