Corona Week 3

4. DU Problems
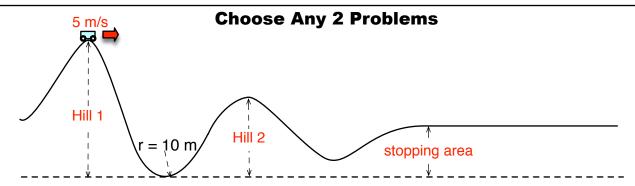

5 m/s

Choose Any 2 Problems

Hill 1

r = 10 m

Hill 2

stopping area

For all problems, choose a height for Hill 1 greater than 100 m. It cannot be a multiple of 5. For example, 132 m would be acceptable, but not 130 m or 200 m.

1. Calculate a height for Hill 2 that would give the coaster 10 m/s of speed at the top of Hill 2.

2. Choose a height for the stopping area less than half of the height of Hill 1.
 Now calculate what the stopping distance will be for the coaster if the coefficient of friction is 0.95.

3. Calculate the speed of the coaster at the bottom of Hill 1. Calculate how many g's that would be for the riders (you might have to look up the old centripetal accel equation.)

4. Choose a height for the stopping area less than half of the height of Hill 1.
 Now calculate what the coefficient of friction would have to be for the coaster to have a stopping distance of 200 m