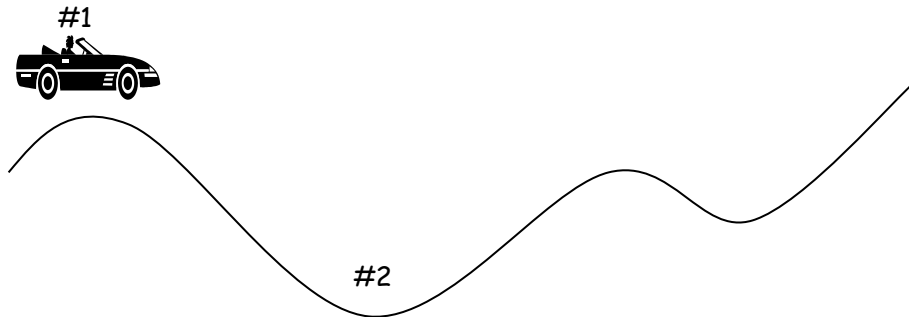


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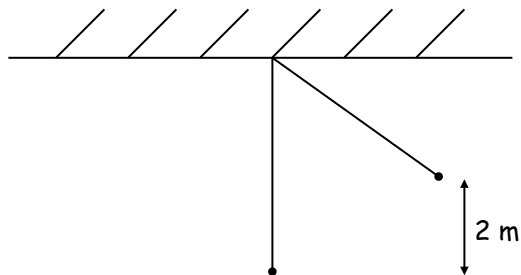
Conservation of Energy Worksheet

- 1) The frictionless car below is moving at 4 m/s at position #1 (50 m above ground level). It has a mass of 1000 kg and is rolling along the hills in neutral. Point #2 is at ground level.

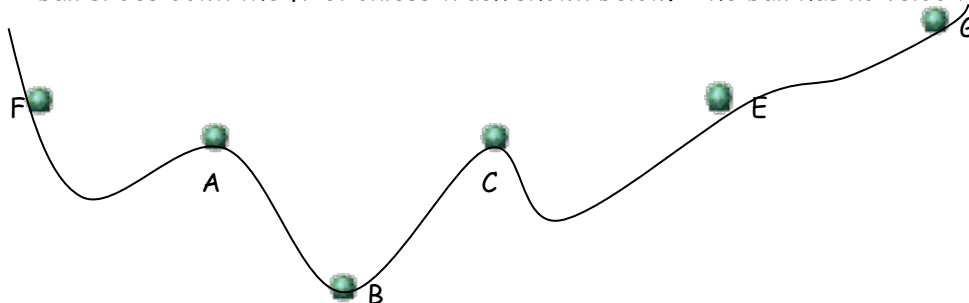


- a) What is the TOTAL energy of the car at point #1?
- b) What is the TOTAL energy of the car at point #2? (HINT** - Law of conservation of energy makes this easy)
- c) How fast will the car be moving when it reaches position #2 (at ground level)?
- d) What is the maximum height above the ground that the car can reach on the right side?

- 2) A pendulum that weighs 1.5 kg is pulled sideways so that it is raised a vertical distance of 2 m above its resting position. Find the maximum speed the pendulum reaches after being released.

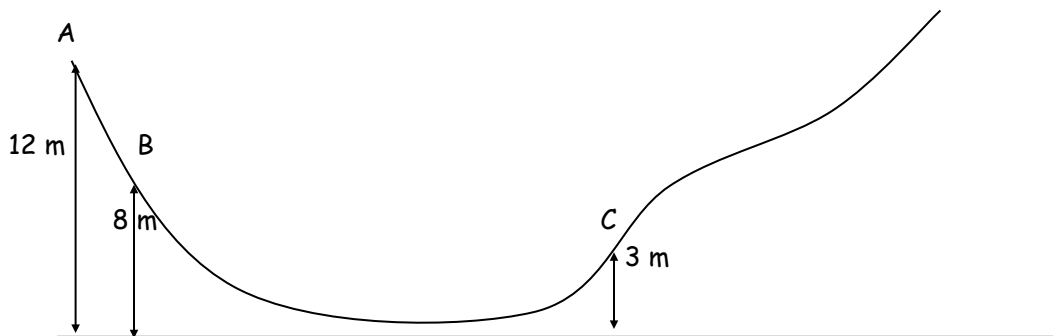


- 3) A ball slides down the frictionless track shown below. The ball has no velocity at position F.



- To what point does the ball rise on the opposite incline?
- At what point(s) in the diagram is the speed at a maximum?
- At what point(s) is the kinetic energy at a maximum?
- At what point(s) is the speed zero?
- At what point(s) is the potential energy at a minimum?
- At what point(s) is the potential energy at a maximum?

4) At point "A" on the hill, there is a skier moving at 6 m/s.



a) Find the skier's maximum speed if he has a mass of 65 kg. Where on the hill does he achieve this speed?

b) How far up the other hill will the skier be able to go?